ENVIRONMENTAL ASSESSMENT

Shoshone Range OHV Management Program

EA NV-062-EA06-041

Bureau of Land Management

Battle Mountain Field Office

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I. Introduction

This document identifies issues, analyzes alternatives and impacts for construction and management of an Off-Highway Vehicle (OHV) trail system on public land managed by the Bureau of Land Management, Battle Mountain Field Office. It describes the issues, outlines alternatives, discloses the effects of implementation and will be used as the basis for decision. OHV refers only to all-terrain vehicles less than 50 inches in width.

A. Background for the Purpose and Need

According to a survey done by Nevada Division of State Parks there are approximately 425,435 off-highway vehicles in Nevada (State of Nevada, Division of State Parks, 2005) and this number is expected to grow. Based upon registration figures, Utah is expecting a 27% increase in OHV ownership (Hayes, 2005) this same level of growth could be expected for Nevada. OHV enthusiasts are discovering rural Nevada for its abundance of public land and scenic qualities.

There are few designated trails or transportation systems in Lander County. Based upon casual observations at popular camping areas in adjacent counties, hundreds of OHV users are traveling to these areas to recreate, especially during holiday weekends and are primarily recreating on lands administered by the Bureau of Land Management and the US Forest Service (Ivins T., Christensen, C., 2005). An official survey has not been performed to determine more precise figures of OHV recreation use in the Battle Mountain area.

Studies indicate that OHV users prefer trails that provide a variety of terrain, challenge, and length, and that also provide other amenities such as scenery and historic structures. These same studies indicate that recreation based OHV users ride anywhere from 15-120 miles in a day and tend to travel for recreation on weekends and holiday weekends (Nelson, 1990). Providing the opportunities that meet the needs of this type of recreation group while taking into account other resources is the key to successfully managing recreation based OHV use, according to OHV management specialists (Dufourd, 2004).

Travel management is a long term process that requires constant revision in order to identify and provide a network of roads, trails, and transportation options that meets the needs of the public for a variety of purposes and takes into account other resources. This is directly related to the management of recreational off-highway vehicle use where trails and roads are provided and identified that meets the needs of a specific type of use while considering the resources of an area. The Battle Mountain Field Office's Resource Management Plan (RMP) revision is slated to commence in 2009 which would begin to address travel management throughout the district on a much larger scale in this multi-year process.

B. Purpose and Need

The purpose is to begin the travel management process for a specific area by providing trail and road related opportunities that meet the increasing needs of recreation based OHV use while taking into account resources in that area. The trail and transportation network that would be

created through this project would be incorporated into the larger scale travel management planning effort that would occur through revisions of the multi-year Battle Mountain District RMP revision slated to begin in 2009. The intention is to meet the needs of current and projected future OHV users primarily from the northern Nevada area by establishing a comprehensive, managed, maintained, and monitored OHV trail system. There is a need for managed OHV trails in this region. Existing routes located within the planning area provide motorized access to portions of the planning area but do not provide quality recreation trail opportunities. Effectively managing OHV use includes providing sustainable OHV trails to meet current use. Unmanaged OHV trail use can be greatly reduced by proactively developing an OHV trail system with adequate mileage, signing, user education, and peer enforcement. This project would relieve pressure from existing OHV use outside of the project area in places with more sensitive resources.

C. **Relationship to Planning**

Applicable Land Use Plans:

Shoshone-Eureka Planning Area Resource Management Plan (RMP) February 26, 1986, as amended on June 24, 1997.

The proposed action is in conformance with the applicable Land Use Plan listed above. The Shoshone-Eureka Planning Area Resource Management Plan states "Develop the recreation potential of the public lands to a level sufficient to meet the growing demands of recreationists using the public lands." And "Encourage recreation use on the public lands" (Recreation section, pg. 30, nos. 1 and 2).

The proposed action follows Resource Advisory Council's "OHV Administration Guidelines for Nevada Public Lands" which provides guidance for On the Ground Management, Planning, and Education Guidelines (see Appendix B).

The proposed action is consistent with the Lander County Policy Plan for Federally Administered Lands (2005) which under the heading Off Highway Vehicles Policy W1 states "Direct OHV use to designated trails and actively discourage pioneering of new trails and use in sensitive areas through collaborative public education efforts with the local communities and federal planning partners" and Policy W2 "Support community efforts to expand the availability of OHV trails and resources…"(page 40-41, Section W. Off Highway Vehicles).

D. **Issues**

The following issues of primary concern were raised during public and internal scoping. Livestock grazing (impacts to operations, loss of AUMs), cultural (impacts to cultural sites), noxious weed control (increased infestations due to OHV use and the associated impacts), wildlife habitat (fragmentation, loss of habitat due to off trail travel, direct mortality), riparian

areas (impacts associated with increased recreation use), air quality (increase in dust levels), and wild horses (increase in energy expenditure due, disturbance at watering sites).

II. Description of Proposed Action and Alternatives

Introduction
This chapter describes and compares the alternatives considered for the EA. It includes a description of each alternative considered and presents mitigation measures set forth to ease some of the potential effects. This section also presents the alternatives in comparative form, describes the differences among all alternatives, and provides a basis for choice among options by the decision maker and the public. The purpose of this chapter is to formulate a range of alternatives which respond to the Purpose and Need and Issues identified in Chapter I.

The BLM recreation staff in coordination with local current and future OHV users and organizations developed alternatives based upon GIS resource data, input received through scoping meetings, BLM resource specialists, research on OHV user preferences, and recommendations made by an OHV trail consultant.

The scoping process involved input from BLM resource specialists, Nevada Department of Wildlife personnel, Commission for the Preservation of Wild Horses, Wild Horse Organized Assistance, grazing permittees, local OHV users, a local trails organization, and interested members of the public. A consultant specializing in motorized trails and OHV Management was also consulted to review the project and make recommendations on trail system design and keys to implementing a successful OHV program.

A. Proposed Action – Phased Trail Development with Discouraged Season of Use

The Bureau of Land Management, Battle Mountain Field Office proposes to construct, manage, and maintain an OHV trail system in the Shoshone Mountain Range in Lander County, Nevada, approximately 24 miles south of Battle Mountain, Nevada east of State Route 305. The implementation of this project would occur in three phases with the first phase taking place in 2007-2009 with management, maintenance and monitoring of the trail system ongoing thereafter. This management program would focus recreational OHV use on a network of roads and trails and would be designed to help eliminate the proliferation of unauthorized roads and trails. This project is following guidance from BLM's National Priorities for Recreation (2003), BLM's National Management Strategy for Motorized OHV use on Public Lands (2001), Nevada Resource Advisory Council's OHV Administration Guidelines for Nevada Public Lands (2003).

The proposed new trail system combines both existing routes and new construction for a total of approximately 184 miles of trail. The proposed action includes identifying some existing routes as OHV trails and developing new OHV connector trails, three trailheads, and two adjacent practice riding loops. The trails would provide a wide variety of different loop opportunities consisting of a variety of lengths and difficulties. The proposed action would utilize approximately 87 miles of existing routes and build approximately 97 miles of new trails, which

equates to approximately 47 acres of disturbance. The trails would be constructed with a small trail dozer that is approximately 50" wide. Existing roads incorporated as part of the trail system would be signed as Shared Use Roads and would be open for both OHV and full size vehicles. Other roads within the project area that are not part of the designated OHV trail system would remain open to all size vehicle uses unless determined otherwise through future transportation planning.

OHV compatible cattleguards or fence crossings would be installed at locations where trails cross fences. Information would be provided to inform users of the presence of livestock and proper multiple use etiquette. Existing routes that are currently impacting riparian areas and springs would be re-routed to reduce impacts to wildlife, grazing, water quality, and sensitive vegetation. Re-routes and route rehabilitation would be performed along the cottonwood basin/moss creek road in areas that are currently impacting riparian areas and aspen stands. Re-routed sections may be open to full size vehicles if determined to be appropriate based on trail management objectives for that trail. Improvements to existing roads could also be performed where determined necessary based upon monitoring. Mineral entry withdrawals would not occur through this proposed action. New trail construction would avoid the following plant species; aspen, elderberry, willow, serviceberry, chokecherry, and mountain mahogany.

Three trailheads would be developed. Trailheads would consist of a 1-5 acre graveled parking area, parking delineation barriers, trail access signing and an information kiosk.

Cultural resource interpretation opportunities would be provided where available. All new or existing trails within the Shoshone Range OHV Trails system would follow the requirements set forth in the State Protocol Agreement between the Nevada State Historic Preservation Office and BLM Nevada. All cultural resources (except those defined as categorically not eligible in the Protocol Appendix E) would be avoided using the guidelines set forth in the Protocol Appendix F, Section H, Roads and Trails. Implementation of the new construction or signing of existing routes would not occur until State Historic Preservation Office concurrence is received.

New trails would be constructed to a 50" wide standard using established trail design methods and standards, as developed by the US Forest Service and the American Motorcycle Association. Following "Three steps to ecologically sensitive road/trail planning" new trail construction would be located to avoid riparian and spring areas (Forman, Sperling et al., 2003). These trails would be designed to be meandering, highly sustainable, and self-draining where possible, minimizing erosion and maintenance. Trail structures such as trail hardening, crib walls and bridges would be installed where necessary to minimize impacts to resources. New trail construction would not take place between April 1st and July 15th unless a survey of the project area is done to determine that no migratory bird breeding or nesting is occurring in the area for the conservation of migratory birds.

All proposed OHV trail routes would be inventoried for the existence of invasive plants, noxious weeds and pests prior to trail development. Following established best management practices, noxious weed infestations adjacent to any proposed trail segments would be treated prior to marking the segments as OHV trails. Trail segments requiring construction would have site-appropriate native vegetation re-established prior to the marking of the segments as OHV trails.

Invasive plant, noxious weed and pest awareness and prevention education techniques would be utilized by all means available to increase the awareness of OHV trail users. At a minimum, information would be provided at trailheads, by patrol personnel (see Appendix C, Section 7 for more information about the Education and Enforcement Plan) and on a trail system informational web site.

All designated routes associated with the trail system would be marked using fiberglass markers with appropriate information. Trailhead areas would be designed to provide easy access for passenger vehicles pulling trailers and easy access out to the trail system and would also incorporate practice loop areas. Maps of the trail system would be provided as well as information regarding responsible land use. Major emphasis would be placed on user ethics, with Right Rider, Tread Lightly, or other programs being employed.

An OHV management plan would be developed incorporating monitoring and mitigation measures described in this alternative as well as from the Shoshone Range OHV Management Plan (see Appendix C). The monitoring plan also includes a complete list of inventories that would be performed prior to any ground disturbance activity.

Seasonal Discouraged Use Period
Recreational OHV use would be discouraged within the project area from December 1st to June 30th. This would be accomplished through signing, trail patrols, web site information and literature regarding the trail system.

Implementation
The project would be implemented in three phases. Approximately 69 miles of motorized trails would be developed in Phase I. The Phase I trail system would consist of 27 miles of existing low-use, low-speed roads and jeep trails, 42 miles of new connector routes which equates to approximately 20 acres of disturbance, and one trailhead. Refer to Appendix A for maps showing the proposed action including phases. Prior to trail development an inventory would be performed and the trail would be re-located to avoid identified sensitive resources. The inventory would follow the guidance found in the monitoring plan (see Appendix D). Each phase would not be signed and new routes would not be tied in with existing roads until all portions of the phase are completed. Upon the completion of Phase I development, the trail system would be evaluated following guidance in the monitoring plan to determine the adequacy of trail management techniques and to further study other resources in the area. During the implementation of phase I resource data would be collected. This data would be used to evaluate the management of the phase I system and to adapt the location and management of subsequent phases. Phase II would include approximately 64 miles of motorized trails in addition to phase I, including 41 miles of existing low-use, low-speed roads and jeep trail, 23 miles of new connector routes which equates to approximately 11 acres of disturbance, and an additional trailhead. Phase II would not be implemented until at least 2009 to allow for the collection and analysis of additional baseline data. Upon the completion of Phase II development, the trail system would be evaluated for two years in order to determine the adequacy of trail management techniques and to further study other resources in the area. If changes to resources are found to be occurring beyond acceptable limits by the end of each phase, additional phases of the trail system would not be implemented without adapting the management of the trail system. In

addition, Phase III would not be implemented until use level monitoring indicates that a need for additional trails exists. Phase III would fulfill the remainder of the proposed action. Some possibilities of management adaptation would be:

- Doing a Resource Management Plan amendment changing the OHV designation of the trail system planning area to 'limited to designated routes' and/or 'limited by season'.
- Pursuant to authority in 43 CFR 8341.2 the BLM could prepare an emergency OHV restriction to the planning area restricting motorized travel within the area to designated routes.
- Reclaiming 100% of remaining recreational user created routes developed during and after the evaluation period in the trail system planning area.
- Additional peer patrol coverage for all high use weekends emphasizing responsible use and need to protect sensitive resources.
- Discouraging use in certain areas of the Phase I trail system by removing signage and map references on certain trail segments.
- Re-locating trails to avoid identified sensitive areas as identified through monitoring.
- Placing additional temporal restrictions on the trail system to minimize impacts to sensitive resources if identified as an effective strategy and monitoring indicates a need.

Maintenance

The trail system would require annual maintenance. Natural and human caused damage to trails may occur. Trails would be maintained using the standards described in this Environmental Assessment. A management plan would be developed that would direct the management of the trail system based on established standard operating procedures as identified in the management plan (see Appendix C). This plan would outline trail management objectives including maintenance protocol, enforcement issues, user education, signing, mapping, and monitoring. Maintenance would include rehabilitation of user created routes associated with the trail system.

Monitoring

The monitoring plan was developed based on needs and mitigations identified in this alternative. The monitoring plan would conform to standard operating procedures (see Appendix D). The monitoring would be performed to gather baseline data prior to opening the trail system and to conduct subsequent annual monitoring. Funding for this monitoring would come from a variety of sources and would be performed as funding is available. Data would be collected through the entire evaluation period (pre construction, construction, operational) in an effort to adequately evaluate impacts of the trail system. The monitoring plan would monitor for use levels, user conflicts, unauthorized routes, invasive plant and noxious weed infestations, wildlife, wild horses and maintenance needs. The development of the trail system would be phased in based upon use levels and monitoring. Should monitoring reveal that impacts are occurring in excess of established sensitive resource impact thresholds, adaptive management would be implemented. The following are potential adaptive management strategies that could be implemented:

- Re-route of trail to avoid impacts
- Closure of trail to avoid impacts

- Installation of barriers or signage to reduce impacts
- Establish program to limit use
- Add additional temporal restrictions

See appendix A for maps of the Action Alternatives.

B. Phased Trail Development with Seasonal 'Limited to Designated Routes' Designation

Alternative B is the same as Alternative A above with the exception of the 'Seasonal Discouraged Use Period' from December 1st to June 30th. This alternative would modify the travel designation of the area from "open" as it currently stands, to "limited to designated routes" formally limiting motorized travel in the area exclusively to routes that are in existence at the time of designation. This designation would be made either through an amendment to or revision of the Shoshone-Eureka Resource Management Plan or as an immediate OHV restriction pursuant to authority in 43 CFR 8341.2. The 'Limited to Designated Routes' designation would be in effect from December 1st to June 30th of each year. The limited use designation would be implemented before any OHV trails could be marked or advertised as open.

All other aspects of this alternative are the same as Alternative A, including route locations and mileages, phasing and monitoring.

An OHV management plan would be developed incorporating monitoring and mitigation measures described in this alternative and based on standard operating procedures as identified in the management plan (see Appendix C).

See appendix A for maps of the Action Alternatives.

C. Minimum Trail Development, Fish Creek Mountains

This alternative represents a modified version of the proposed action that presents the least amount of new trail construction and was based on comments received.

This alternative would provide approximately 59 miles of trail opportunities; 14 miles of existing routes and 45 miles of new routes that would be constructed. It represents the lowest level OHV recreational opportunities of all of the action alternatives. Two trailheads with practice loops would be constructed. Roads traveling to the trailheads would be improved to accommodate larger vehicles and more frequent vehicle use.
All existing routes within the project area would remain open to full sized vehicles and OHVs. Newly constructed trails would be open to OHVs as defined earlier in this document except where re-routes of existing routes are identified. These would be open to full size vehicles as well as OHVs.

This alternative would concentrate use in a 26,000 acre area in the easternmost portion of the Fish Creek Mountains in Lander County. The area currently has few existing motorized routes that could be utilized as OHV routes, therefore, a higher proportion of the identified OHV routes required for an OHV trail system would have to be constructed than with the other action alternatives. The area is approximately 3-7 miles west of the area in the Shoshone Range being considered under alternatives A, B and D. New trail construction would avoid guzzlers located within the project area by ½ mile.

Trailheads would consist of a 1-3 acre graveled parking area, parking delineation barriers, trail access signing and an information kiosk.

The same level of management, maintenance, and monitoring would occur as identified in the proposed action and based on standard operating procedures as found in the management plan (see Appendix C). Implementation would not be phased based on monitoring and use threshold results. A seasonal discouraged use period would not be incorporated into this alternative.

See appendix A for maps of the Action Alternatives.

D. **Maximum Trail Development**

Alternative D would provide for a 232 mile trail system within the same assessment area of the Shoshone Range as Alternatives A and B. This alternative would utilize approximately 99 miles of existing routes and require the development of approximately 133 miles of new trails. It would provide for the highest amount of developed OHV recreational opportunities of all of the alternatives being considered. Three trailheads with practice loops would be established. Roads traveling to the trailheads would be improved to accommodate larger vehicles and more frequent vehicle use.

Trailheads would consist of a 1-3 acre graveled parking area, parking delineation barriers, trail access signing and an information kiosk.

All existing routes within the project area would remain open to full sized vehicles and OHVs. Newly constructed trails would be open to smaller sized OHVs as defined earlier in this document except where re-routes of existing routes are identified. All re-routing of existing routes would be open to full size vehicles as well as OHVs.

The same level of management, maintenance, and monitoring would occur as identified in the proposed action and based on standard operating procedures as found in the management plan (see Appendix C). Implementation would not be phased based on monitoring and use threshold results. A seasonal discouraged use period would not be incorporated into this alternative.

This alternative would provide the widest variety of different loop opportunities consisting of a variety of lengths and difficulties of all of alternatives being considered. The additional mileage available in this alternative allows for greater flexibility in adaptive management of the trail system.

See Appendix A for maps of the Action Alternatives.

E. No Action

This alternative represents no change to current management direction. The BLM National Strategy for Motorized Off-Highway Vehicle Use on Public Lands (Bureau of Land Management, 2001) recognizes that OHV use is a suitable use of BLM lands allowing for the continued use of this type of recreation. Currently the project area has no designation regarding OHV use which allows for 'open' cross-country travel. This designation would not change.

F. Alternatives Considered but Eliminated from Detailed Analysis

Several alternative locations and options for trail systems were considered but dismissed from further development.

- Trail system development in the Gilbert Creek Area. The development of a trail system in the Gilbert Creek area west of the town of Austin, NV and north of US Highway 50 was considered but eliminated from further study. This was due to the distance of the area from major population centers and OHV users. The OHV management program being considered here is meant to serve those living along the Interstate 80 corridor primarily in Humboldt, Lander, Eureka and Elko Counties due to the higher population and in turn higher level of OHV use.

- Trail system development in the Battle Mountain Range. The development of a trail system in the Battle Mountain Range south of the Town of Battle Mountain was considered but eliminated from further study due to checkerboard land ownership patterns and the increased conflicts that this would present for a project of this nature.

- The same trail system development as in the proposed action and Alternative B. This alternative would restrict travel on all routes except the Red Rock Canyon/Lower Wilson Canyon road maintained by Lander County from April 1st to June 30th of each year. This alternative would require the closure of approximately 230 miles of existing roads in the assessment area for this period as well as any routes developed through an action alternative associated with this project. This alternative was considered but eliminated from further consideration because the level of impact to all public land users would be excessive.

III. Affected Environment and Environmental Consequences

Based on the review of existing baseline data and on the ground surveys conducted during the EA preparation process, BLM specialists have identified the following issues for further analysis:

CRITICAL ELEMENTS	Present	Affected	OTHER RESOURCES	Present	Affected
ACECs	No	No	Land Use Authorizations	No	No
Air Quality	Yes	Yes	Paleontological Resources	No	No
Cultural	Yes	No*	Minerals	Yes	No Mineral entry withdrawals would not occur
Environmental Justice	No	No	Visual Resources	Yes	Yes
Floodplains	No	No	Soils	Yes	Yes
Waste (Hazardous or Solid)	No	No	Recreation	Yes	Yes
Invasive, Non-Native Species	Yes	Yes	Range	Yes	Yes
Native American Religious Concerns	Yes	Yes	Vegetation	Yes	Yes
Migratory Birds	Yes	Yes	Wild Horses and Burros	Yes	Yes
Prime or Unique Farmlands	No	No	Wildlife	Yes	Yes
Riparian-Wetland Zones	Yes	Yes	Woodland Resources	Yes	No*
Solid / Hazardous Waste	No	No	Socioeconomics	Yes	Yes
Special Status Plant and Animal Species	Yes	Yes			
Water Quality	Yes	Yes			
Wild and Scenic Rivers	No	No			
Wilderness (Study Areas	No	No			

*Avoidance

The following elements are not present within the project area and would therefore not be affected: ACECs, environmental justice, floodplains, prime or unique farmlands, solid/hazardous waster, wild and scenic rivers, wilderness, land use authorizations, paleontological resources.

Air Quality

Affected Environment

The Nevada Department of Conservation and Natural Resources (DCNR), Division of Environmental Protection (NDEP), Bureau of Air Quality Planning (BAQP) is responsible for air quality surveillance in all areas of the state other than Clark and Washoe Counties.

The National Air Quality Standards (NAAQS) published by the EPA in 40 CFR Part 50 define the levels of air quality necessary to protect human health and welfare. An area is considered to be in non-attainment for a pollutant if it has violated the NAAQS (generally, more than one exceedance of the NAAQS annually) for that pollutant. The state air quality standards can be found in Nevada Administrative Code (NAC) 445B.22097. During the period of this report, areas under the jurisdiction of NDEP/BAQP were unclassifiable/attainment for all criteria pollutants.

While no ambient air quality monitoring stations are located in the project area itself, data collected from the nearest monitoring stations (Battle Mountain and Elko) provides evidence that air quality complies with NAAQS.

Environmental Consequences

Effects Common to All Action Alternatives –

The air quality monitoring network is designed to measure the six criteria pollutants. These are pollutants that EPA has determined pose the greatest risk to public health in ambient area. They are ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, lead, and particulate matter (PM_{10} and $PM_{2.5}$).

Of these pollutants, the project is most likely to introduce hazardous particulates into the environment. $PM_{2.5}$ are fine particulates associated with smoke and engine exhaust. PM_{10} are relatively coarse particulates such as dusts. The construction phase of all of the action alternatives would result in a local increase in PM_{10} levels. The level of increase and timeframe is directly related to the number of miles of trail construction, associated soil disturbance, and removal of vegetation. An increase in off-highway vehicle use in the area would produce $PM_{2.5}$ particulates in the form of engine exhaust but the sporadic nature of the use obviates this as an environmental impact. Off-highway vehicle use would also produce PM_{10} particulates in the form of dust associated with soil disturbances through use. Mitigation in all of the action alternatives calls for the re-seeding of disturbed sites which would reduce the level of PM_{10} particulates generated.

Organized OHV trails and related activity do have the chance to increase man caused fire starts which could negatively impact air quality. In order to mitigate this possible increase and associated impacts fire prevention information would be provided at trailhead areas, through other materials associated with the project, and through the existing fire restriction process.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

There would be an increase in $PM_{2.5}$ and PM_{10} particulates during the construction phase. These alternatives would result in an increase in dust and particulate matter especially during periods of high use. The high use periods would be expected during the Fourth of July and Labor Day extended weekends and possibly several other weekends throughout the use season. Dust and particulate matter generation would be reduced under this alternative by the reduction in recreational use during the discouraged/limited use period.

Any increase in particulate matter associated with these alternatives would not significantly impact the overall air quality of the area due to the expected amount (avg. 40 users per day during the use season) and type of OHV use (low-speed trail touring) and the limited season of use (July 1 to November 30).

C. Minimum Trail Development, Fish Creek Mountains

As with all of the alternatives there would be an increase in $PM_{2.5}$ and PM_{10} particulates during the construction phase but to a lesser extent than if the Proposed Action or the Maximum Development Alternative were implemented due to less miles of new trail construction proposed. This alternative would result in higher levels of dust and particulate matter during periods of recreation use than the other action alternatives. This is due to having fewer trail options which would concentrate use on a fewer number of trails resulting in a higher frequency of soil disturbance.

D. Maximum Trail Development

This alternative entails more miles of new trail construction, and thus a longer construction phase with more $PM_{2.5}$ and PM_{10} particulates than for the other trail development alternatives. To the extent that use would be distributed over a larger number of trail miles this alternative could have lower concentrations of dust and particulate matter in any given area than the other alternatives. This alternative would not have a discouraged use period, and would generate dust and particulate matter over a longer period of time simply because it would have a longer recreational use season.

E. No Action Alternative

OHV use would remain in the area but to a lesser extent than if an action alternative were implemented. Fugitive dust levels and gaseous emissions would increase slightly as OHV use increased. If OHV use remained lower over time than any of the action alternatives then lower concentrations of dust and particulate matter would occur.

Cultural

Affected Environment

A Class III Cultural Resource Survey has been completed for portions of the project area (see report BLM-6-2484). This inventory report documents prehistoric cultural resources located during cultural inventory including lithic scatters and isolates. These resources would be avoided by trail design.

Environmental Consequences

Effects Common to All Action Alternatives –

A Class III Cultural Resource Survey has been conducted for portions of the action alternatives. Additional cultural resource surveys would be needed before parts of these alternatives can be implemented. By completing these cultural resource inventories and avoiding cultural resources in trail design and re-design, this project will have 'no effect' to historic properties. All cultural resources (except isolate artifacts which are categorically defined in the Protocol Agreement, Appendix E as not eligible for inclusion on the National Register of Historic Places) would be avoided using the guidelines set forth in the Protocol Appendix F, Section H, Roads and Trails. If off trail use impacts cultural resources site appropriate mitigation measures would be implemented in order to mitigate potential impacts. This could include, but is not limited to, re-aligning/re-designing of the trail, installation of barriers, or closure of routes.

E. No Action Alternative

OHV use would continue in the area at lesser levels than if any action alternatives were implemented. Cultural inventories that would be conducted under an action alternative would not be conducted under the No Action Alternative. The current travel designation of "open" with no management program in place would continue. This could result in off-trail travel and the pioneering of new routes potentially impacting unknown cultural sites.

Invasive, Non-Native Species

Affected Environment

A complete noxious weed inventory for the proposed project areas has not been completed. Infestations of hoary cress (*Cardaria draba*), Russian knapweed (*Centaurea repens*), and saltcedar (*Tamarix ramosissima*) have been recorded in the vicinity of the project areas. Cheatgrass (*Bromus tectorum*) is prolific in the region, particularly in areas that have been burned by wildfires in the past few years. Halogeton is also present throughout the project area.

Environmental Consequences

Effects Common to All Action Alternatives –

Possible adverse effects on sites and possible expansion of infestations within the project area could occur. Preventative management measures for the proposed project to reduce the risk of introduction or spread of noxious weeds into the area is required. An increase in off-highway vehicles traveling through known infestations as well as an increase in ground disturbances associated with new trail construction would increase the likelihood of invasive weed encroachment. Trail development associated with any of the action alternatives is likely to result in use by OHV users from outside Lander County and in some cases from outside Nevada, so there is potential for the introduction of noxious weeds from these users, primarily in the trailhead areas and along the marked trail system. A noxious weed inventory of the proposed trail system would be conducted before beginning any trail development. Known noxious weed infestations along existing roads that would be used as part of the trail system would be treated using established best management practices. Infestations would also be treated along proposed new connector trails prior to construction or the trail would be re-located. All new connector trail segments would be reseeded following established best management practices guidelines following ground disturbing construction activities. Known noxious weed infestations along existing routes to be used as part of the trail system would be treated before being marked as part of the OHV trail system. Annual monitoring of the trail system and other areas known to be used by visitors associated with the trail system for noxious weeds would be conducted and any new noxious weed infestations would be incorporated into the annual maintenance plan for treatment.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

Under these alternatives there is potential for the spread of noxious weeds by the construction of new OHV connector trails and visitors using the OHV trail system. The risk of the introduction or spread of noxious weeds during the construction phase would primarily occur within the trailhead areas and along the 97 miles of new OHV connector trails. The risk from visitation would primarily include the trailhead areas, the 97 miles of new OHV connector trails and the 87 miles of existing routes that would be used as part of the trail system. Increased visitation to other areas not associated with the trail system would also likely occur.

C. Minimum Trail Development, Fish Creek Mountains

Under this alternative there is potential for the spread of noxious weeds by the construction of new OHV connector trails and visitors using the OHV trail system. The risk of the introduction or spread of noxious weeds during the construction phase would primarily occur within the trailhead areas and along the 45 miles of new OHV connector trails. The risk from visitation would primarily include the trailhead areas, the 45 miles of new OHV connector trails and the 14

miles of existing routes that would be used as part of the trail system. Increased visitation to other areas not associated with the trail system would also likely occur.

D. Maximum Trail Development

Under this alternative there is potential for the spread of noxious weeds by the construction of new OHV connector trails and visitors using the OHV trail system. The risk of the introduction or spread of noxious weeds during the construction phase would primarily occur within the trailhead areas and along the 133 miles of new OHV connector trails. The risk from visitation would primarily include the trailhead areas, the 133 miles of new OHV connector trails and the 99 miles of existing routes that would be used as part of the trail system. Increased visitation to other areas not associated with the trail system would also likely occur.

E. No Action Alternative

The spread of noxious weed species would continue to occur within this area but to a lesser extent than if an action alternative were implemented. Through this alternative there would not be an increase in the level of monitoring and control measures of noxious and invasive weed species within the project area as would be seen through mitigation measures with an action alternative. No user education regarding the spread of noxious and invasive weed species to OHV users would occur.

Native American

Affected Environment

Located within the traditional territory of the Western Shoshone, the BLM Battle Mountain Field Office administrative boundary contains spiritual/traditional/cultural resources, sites, and social practices that aid in maintaining and strengthening social, cultural, and spiritual integrity. Recognized tribes with known interests within the BLM Battle Mountain Field Office administrative boundary are the Te-Moak Tribe of Western Shoshone (Elko, South Fork, Wells, and Battle Mountain Bands), Duck Valley Sho-Pai Tribes of Idaho and Nevada, Duckwater Shoshone Tribe, Ely Shoshone Tribe, Yomba Shoshone Tribe, Timbisha Shoshone Tribe, and various other community members and individuals.

Resources, sites and social practices of importance include, but are not limited to: Existing antelope traps; certain mountain tops used for prayer; medicinal and edible plant gathering locations; prehistoric and historic village sites and gravesites; sites associated with creation stories; hot and cold springs; material used for basketry and cradle board making; locations of stone tools such as points and grinding stones (mono and matate); chert and obsidian quarries; hunting sites; sweat lodge locations; locations of pine nut ceremonies, traditional gathering, and camping; boulders used for offerings and medicine gathering; tribally identified Traditional Cultural Properties (TCP's); TCP's found eligible to the National Register of Historic Places;

rock shelters; "rock art" locations; lands that are near, within, or bordering current reservation boundaries; lands that conflict with tribal land acquisition efforts that involve the Nevada Congressional Delegation; water sources (hot and cold springs, etc) in general that appear to be considered the "life blood of the Earth and all who dwell upon it."

Specifically, within the Shoshone Range, this area has long been known as the major hunting and edible/medicinal plant harvesting area for the Battle Mountain Band. Compared to most of the Band's often dry traditional territory, this area contains numerous clean (but small) drinking water sources. Prehistoric and historic hunting and gathering camps and associated family cultural use sites exist throughout Mill Creek Canyon, the Hill Top area, Lewis Canyon, and near a major spring complex on the southeastern side of the Shoshone Range.

Environmental Consequences

Effects Common to All Action Alternatives

In accordance with the National Historic Preservation Act (P.L. 89-665), the National Environmental Policy Act (P.L. 91-190), the Federal Land Policy and Management Act (P. L.94-579), the American Indian Religious Freedom Act (P.L. 95-341), the Native American Graves Protection and Repatriation Act (P.L. 101-601) and Executive Order 13007, the BLM must also provide affected tribes an opportunity to comment and consult on the proposed project. BLM must attempt to identify locations having traditional, cultural, or spiritual importance and limit, reduce, or possibly eliminate any negative impacts to identified traditional, cultural, spiritual sites, activities, and resources.

In early November, 2006, the BLM sent project notification letters to the following tribal entities: Te-Moak Tribe of Western Shoshone (Elko Band, Wells Band, Battle Mountain Band, South Fork Band), Duck Valley Sho-Pai Tribes, Duckwater Shoshone, Ely Shoshone, Timbisha Shoshone, Yomba Shoshone, Western Shoshone Committee, Western Shoshone Defense Project, and the Bureau of Indian Affairs. Those tribes requesting further discussion were: Duck Valley Sho-Pai Tribes, Battle Mountain Band, and Yomba Shoshone. On January 25, 2007, Battle Mountain BLM met with the Battle Mountain Band Council at their tribal headquarters. On February 9, 2007, BLM met with the Yomba Shoshone Council and on February 27, 2007, BLM met with the Duck Valley Sho-Pai Tribal Council. After the series of meetings, Battle Mountain Band requested a field tour with BLM to the Shoshone Range OHV project area. This field tour took place on Wednesday, May 9th, 2007 (*weather and road conditions would not allow tour during much of March and April, 2007).* BLM does not wish to bar or significantly reduce Native American access to traditional use sites and has asked for more specific site locations to avoid or to be monitored in the future.

The main topics of discussion, concerns, or focal points given by active tribal entities and members to date are: *With deteriorating budgets and staff, BLM cannot handle the additional workload by designating a trail system; how will BLM enforce rules and will a Ranger be patrolling this area? Can BLM guarantee that archaeological sites or cultural use areas will not be impacted? What is BLM's monitoring plan and can the tribes review the draft plan? If,*

through monitoring, BLM determines that OHVs are impacting spring sources, archaeological sites, and cultural use areas, how will BLM react to any such degradation? Impacts to tribal cultural resources and sites may not occur or may be limited during the phase one trail construction, however, is BLM prepared to deal with possible cumulative impacts that might result after the completion of phase two and three? What are the consequences to OHV users if they are caught degrading the land, not staying on designated routes, driving in spring or riparian areas, or looting cultural sites? How can BLM determine the difference between "casual" or "recreational" OHV use and use of OHVs by hunters and do the same rules established for the trail system apply to both? Regardless of the location of existing roads or trails, can BLM please not formally designate (through signs or markers) roads or trails that lead to water sources? Water sources and springs are also the location of cultural use sites and Western Shoshone archaeological sites. Those sites may already be impacted due to existing roads and designating a formal trail system may only attract more people to the spring and thus further impacting cultural sites. Many cultural sites are used seasonally. Is BLM willing to consider seasonal restrictions along the OHV trail (spring plant gathering, sage grouse strutting, etc...). This proposal will create too much dust and this is harmful to trees parallel to roads and the environment in general. During the May 9th Battle Mountain Band field tour, during our second stop at a major spring source, we toured two rock wall features with considerable numbers of prehistoric artifacts. Tribal members ask that this portion of the trail system be eliminated from further consideration, based on the multitude of artifacts and associated cold spring source and completeness of the two rock wall features.

The Shoshone OHV Education and Enforcement Plan (Appendix C, Section 7) addresses enforcement and education of OHV users in association with the designated trail system. The plan focuses on education, engineering, and peer enforcement. Additional law enforcement within the area is also addressed. Appendix D, Shoshone OHV Trail System Monitoring Plan outlines approaches, timeframes and techniques for monitoring use and resources in the area. This plan also addresses adaptive management strategies if impacts to resources are occurring at unacceptable levels including but not excluded to seasonal closures and re-location of roads and trails if identified as an effective tool in reducing impacts.

As identified within the proposed action the project would be developed in three phases. The intent of the phasing is to provide a timeframe for the collection and analysis of baseline data as well as to analyze the effectiveness of the management program. Subsequent phases would not be implemented if monitoring indicates that the management program is not effective or impacts to resources are occurring at unacceptable levels. New trail construction and route designation would avoid springs and riparian areas to the greatest extent possible. Based on results of monitoring existing routes associated with the proposed project that are currently impacting riparian areas may be improved or re-located in order to lessen impacts.

All use that occurs within the designated trail system would be required to follow the same set of established rules including staying on designated roads and trails and seasonal closures that may be in effect.

Following best management practices for noxious and invasive species the trails would be seeded following construction. This would reduce the potential for the spread of undesired species as well as reduce the level of dust associated with OHV use on trails.

Those people recreating within formally designated trail routes would be educated regarding ethics in relation to protecting historic and prehistoric artifacts. Cultural and Archaeological resources are protected under the Archaeological Resources Protection Act (16 U.S.C 470ii) and the Federal Land Management Policy Act (43 U.S.C. 1701).

Though the possibility of disturbing Native American gravesites within the project area is extremely low and no known gravesites have been identified, inadvertent discovery procedures must be noted. Under the Native American Graves Protection and Repatriation Act, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation.

E. **No Action Alternative**

Under the no action alternative, ground disturbances associated with trail development would not occur and a trail system would not be implemented. Dispersed OHV use would continue in the area at lesser levels than if any action alternatives were implemented. Cultural inventories that would be conducted under an action alternative would not be conducted under the No Action Alternative. Impacts to Native American concerns would continue to occur at similar levels.

Wildlife

Affected Environment

Wildlife found in the vicinity of the project areas is typical of that found in the pinyon/juniper woodland, desert shrub, and sagebrush communities. According to the BLM GIS database, 23,072 acres or 13.7% of the project area occurs within summer habitat for mule deer and 35,081 acres or 21% in winter habitat. Wildlife population monitoring is conducted by the Nevada Department of Wildlife (NDOW). Annual population estimates are made by Areas and hunt units. The project area lies within Area 15, hunt unit 152 which is 646,544 acres in size. The proposed project area would impact approximately 25% of this hunt unit. The most recent NDOW population estimate (spring 2007) for Management Area 15 is 3,546 deer. Seventy five deer were classified as 53 adults and 22 fawns. The resulting adult/fawn ratio was computed at 42 fawns per 100 adults. This is close to the Management Area 15 long-term average (and median) ratio of 41 fawns per 100 adults, and shows improvement over the NDOW (Spring 2006) census results in Area 15 of 36 fawns per 100 adults. It is important to note that the spring 2007 survey was a ground survey with challenging field conditions versus aerial surveys as performed in previous years. Ground surveys typically result in less accurate estimates. This

measure of the previous summer's fawn production, and the winter survival of those fawns, is widely considered the best available indicator of mule deer population trend.

Mule deer summer at highest densities in mountains such as the Fish Creek and Shoshone Ranges, and winter in lower elevation foothills and valleys. Key mule deer summer ranges lie within the Cottonwood Basin/Elephant Head regions of the Shoshone Mountains and in the Toiyabe (Bald Mountain) and Fish Creek Mountains. Winter concentrations can be found on the western foothills of the Shoshone range in the Harry Canyon/Redrock Canyon area, farther south in the area known as "The Cedars", in the vicinity of Red Mountain south of Carico Lake itself, and on the low hills west of Cortez Canyon. The Harry Canyon area south to the Redrock Canyon area is important deer winter range for unit 152 deer. The eastern-most foothills of the Fish Creek Mountains also hold wintering mule deer. Mule deer migration is not well understood, with individual animals commonly traveling much farther than apparently necessary to reach a winter or summer range (Carico Lake Evaluation and Rangeland Health Assessment).

Raptor nesting areas are known to occur within the project area. Known species include the golden eagle, the prairie falcon, and the ferruginous hawk. The golden eagle is Nevada's largest resident bird of prey and nests in cliff areas. This highly adaptable bird is a common year-long resident of the project area and feed primarily on small mammals. The prairie falcon is known to be a yearlong resident of Nevada with the highest density of nest sites located in or near the mouth of narrow canyons, overlooking riparian vegetation and/or agricultural lands. Cliffs are preferred, but nest sites seem to depend on the abundance of prey species as otherwise unsuitable nest sites are often used if prey is available. The ferruginous hawk is a nesting-summer resident of the project area. A number of nests have been recorded over the years. This species breeds primarily in sagebrush and grassland areas where small mammal prey is abundant. Nests are normally constructed in lone juniper trees, which overlook large open areas on alluvial fans. The project area appears to offer little in the way of cliff nesting habitat, although the site may still be used as foraging habitat for cliff nesting raptors such as golden eagles and prairie falcons breeding in surrounding areas. No data are available to assess occurrence of nocturnal raptors (i.e., owls).

Environmental Consequences

Effects Common to All Action Alternatives –

Wildlife would be affected by all of the Action Alternatives. This would vary dependent upon level of new trail construction, numbers of users, and season of use. Mitigation described in the proposed action would limit impacts. This includes impacts during the construction phase as well as subsequent recreation use.

The project would introduce an increase in human disturbances of a similar nature to what is already occurring within the raptor nesting areas. All of the action alternatives propose trail construction within known raptor nesting areas. The exact location of nests in relation to proposed trails is unknown, however an inventory of nest sites would be performed prior to

implementation. Impacts could include temporary displacement of individual animals, a reduction in nesting success, nest abandonment, or abandonment of territory (Youmans. H 1999).

Studies measuring responses of deer to OHV use generally concluded that responses were minimal and that no correlation between OHV activity levels and animal activity levels occur (Devol, 1999). For instance, a study on deer in the Rock Creek OHV area in the Eldorado National Forest "concluded that there was no evidence that deer were affected by the levels of OHV use, and the result was consistent with other studies that evaluated the response of deer to higher levels of vehicle disturbance" and "found no evidence that deer changed their habitat utilization because of traffic levels"(Jones and Stokes Associates, Inc., 1991). However, another study showed that "deer avoided OHV riding areas during peak use but returned to their established home ranges after traffic levels subsided" (Kutilek and Ferris, 1989) which indicates that at least some additional energy expenditure occurred in association with OHV use. According to "Planning Trails with Wildlife in Mind," predictable human action reduces the level of stress on wildlife by allowing them to adapt to those actions (Hellmund Associates, 1998). However, habituation is dependent upon benign human activity (i.e., no hunting pressure) and it is expected that the hunter success rate within this area would increase due to the increase in access to OHVs. Deer tend to return to regular behavior patterns within weeks to months following the annual hunting season. It is not anticipated that NDOW would be modifying the amount of game tags distributed to this area.

Road densities have been determined to affect large animals (such as deer) and their population levels. Havlick (2002) suggests that one to two miles of road per square mile density is the level when large animal habitat effectiveness and animal population drops. Other research suggests that road densities of 1 mile of road per square mile can reduce habitat effectiveness by 25 percent, and when exposed to trail and road traffic elk abandoned larger areas with superior forage and shifted to over-grazed small forest patches where OHVs and trails were absent (Lyon 1983, Hudson and Morgantini 1991). Research conducted at the Starkey Experimental Forest and Range in northeastern Oregon suggests that elk flight from human disturbance was highly dependent on distance to disturbance and that the probability of elk flight continued beyond 1,500 meters from OHV riders (Wisdom et al. 2004). A substantial number of studies have demonstrated that vehicle traffic on forest roads does establish a pattern of habitat use in which the areas nearest the road are not fully available for use by elk potentially resulting in a substantial reduction of habitat use (Youmans, H. 1999). The width of new connector trails under all action alternatives would be a maximum of 50" which results in 37% less ground disturbance per unit of distance than that of minor 8' wide road construction.

The Maximum Trail Development Alternative would have approximately 0.88 miles of trail per square mile if all trails were constructed and proposed existing routes utilized. The trail densities for this alternative would likely affect large animal use of the habitat during periods of high trail use. Large animals would likely move away from heavily used trails during the high use part of the day.

Indirect impacts of the project would be related to the removal of habitat, forage, and vegetative cover associated with the construction of new trails and trailheads along with area of avoidance associated with emitted noise from OHVs. The level of vegetation removal is directly correlated

to the number of miles of new trail construction for each of the action alternatives. The removal of vegetation and potential habitat would result in an initial period of adjustment. A study performed by the US Forest Service found that noise associated with motorcycle use at 101 dba was audible to humans for distances up to ½ mile and also found that "no direct physiological effect on animals in the area could be expected from the motorcycle sounds (United States Department of Agriculture, 1993)". Given that stock off –highway vehicles noise emissions are generally lower than 101 dba, most states have a 99 to 96 dba limit regulation (Nevada does not have a noise regulation for OHVs), and that the project would be designed for trail touring as opposed to speed based OHV recreation, the utility-type machines that would likely utilize the trail system would emit lower noise levels than tested in this study. Based on this study, the type of machines most likely present within the project area, and topography of the project area it is assumed that a typical machine using the trail system would produce sound that could influence wildlife an average radius of ¼ mile (125 acres).

All new trail construction would avoid sensitive riparian areas and springs which would reduce potential impacts to wildlife species (see proposed action).

Use levels and period of use is the largest determinant in analyzing impacts to wildlife species. In order to assess potential impacts predicted levels of use were established for each of the alternatives. These are based upon the overall design of the project targeting single-day use versus destination riding opportunities and the encouraged season of use for each alternative. Four use levels were identified: peak-use coinciding with three-day holiday weekends with 120 users expected, weekend use coinciding with normal weekend conditions, 1 weekday a month based upon the mining industries swing shift work schedules both with 75 users expected, and non-peak use occurring during the remainder of the week with 20 users expected. During these days of use it is assumed that the majority of use would occur during daylight hours from 8:00 a.m. to 5:00 p.m. resulting in a 9 hour use period for each day of use. Literature documenting OHV user preferences and use patterns varies, so it is assumed that participants would travel 50 miles/day and travel 12 mph on average. This equates to an average of 4.2 hours of riding per user per day which equals 17.5% of the total day. Based upon the study performed by the USDA on the impacts of noise on wildlife, anticipated machine decibel levels, and topography of the project area it is assumed that use would emit noise that could impact wildlife an average of ¼ mile distance equating to approximately 125 acres per user. Based on these assumptions, each of the alternatives can be further analyzed based upon the proposed season of use, the number of use days and their expected use levels, and their occurrence within seasonal wildlife habitat areas.

Based on the expected use levels and the average 125-acre noise radius for impacts to wildlife the percentage of the project area that could be impacted can be calculated. For peak-use days with 120 visitors 9.3% of the project area could be impacted at any given time for 17.5% of the day assuming that all users are utilizing the trail system simultaneously and the assessment area is 160,000 acres in size (120 users x 125 acres / 160,000 = 9.3%). For weekend-use days with 75 users expected 5.8% of the project area could be impacted at any given time for 17.5% of the day assuming that all users are utilizing the trail system simultaneously and the assessment area is 160,000 acres in size (75 users x 125 acres / 160,000 = 5.8%). For non-peak days with 20 users 1.6% of the project area could be impacted at any given time for 17.5% of the day assuming that

all users are utilizing the trail system simultaneously and the project area is 160,000 acres in size (20 users x 125 acres / 160,000 =1.6%). This can then be analyzed for each alternative based on the encouraged season of use and the number of use days occurring within this period.

A. Proposed Action. And
B. Phased Development, Limited Use Designation

Alternatives A and B call for a discouraged season of use or a 'Limited Use' designation from December 1st to June 30th. Within the period of use 6 peak-use days with 120 users (4th of July and Labor Day), 45 weekend –use days with 75 users expected, and 101 non-peak days with 20 users expected occur. This equates to 6,115 users during the encouraged period of use with an average of 40.2 users per day utilizing the trail system. This means that, on average, 3.1% of the project area could be impacted at any given time for 17.5% of the day assuming that all users are utilizing the trail system simultaneously and the project area is 160,000 acres in size (40.2 users x 125 acres / 160,000 = 3.1%).

Of this 3.1% limited impacts associated with recreational OHV use would occur during winter use for mule-deer based upon the encouraged season of use reducing potential impacts.

These alternatives would have a road/trail density of .54 miles of road and trails per square mile for phase 1 and 2, and 0.74 miles if all phases were implemented.

Either of these alternatives would meet OHV users needs while decreasing the potential for disturbances to deer along with habitat degradation associated with off trail travel. Due to the level and diversity of trail mileage available, both of these alternatives would have the capacity to manage larger numbers of users, in turn, reducing dispersed OHV recreation and current impacts to wildlife in other sensitive resource areas that currently are seeing increased dispersed OHV use.

C. Minimum Trail Development, Fish Creek Mountains

This alternative does not propose a discouraged season of use. It can be assumed that the period of use would begin at the end of May with Memorial Day weekend and continue through November 30th. Within this period of use there area 9 peak-use days with 120 users (Memorial Day, 4th of July, and Labor Day), 54 weekend-use days with 75 users expected, and 119 non-peak days with 20 users. This equates to 7,510 users during the encouraged period of use with an average of 41.3 users per day utilizing the trail system. This equates to on average 20% of the project area could be impacted at any given time for 17.5% of the day assuming that all users are utilizing the trail system simultaneously and the project area is 26,000 acres in size (41.3 users x 125 acres / 26,000 = 19.8%).

This alternative would have a road/trail density of 1.55 miles of road and trails per square mile. It would result in a 68% higher route density than the maximum trail development alternative

which has the second highest route density. This is due to the smaller potential OHV use area in the Fish Creek Mountains.

D. Maximum Trail Development

Since this alternative does not propose a discouraged season of use it can be assumed that the same periods of use would occur as in the minimum trail development alternative resulting in the same analysis results.

This alternative would have a road/trail density of approximately 0.92 miles of road and trails per square mile.
With no discouraged use period, it is anticipated that some recreational OHV use would occur within portions of the wintering range for mule deer during the season of use. Recreational OHV use would occur during periods of migratory bird nesting.

This alternative would likely result in a lower level of OHV recreation user density per mile of trail as well as a higher user willingness to remain on the managed route system. This would decrease the potential for disturbances to deer along with habitat degradation in association with off trail travel. This action would have the capacity to manage larger numbers of users, in turn, reducing dispersed OHV recreation and current impacts to wildlife in other sensitive resource areas.

E. No Action Alternative

There would be no temporary displacement of individual animals during a construction phase. OHV use would continue in the area at lesser levels than if an action alternative were implemented. This would present no additional adverse impacts to migratory bird species due to construction. Current levels of OHV use would continue in the area and would more than likely increase over time as population and recreation in the general area increases. The increase in OHV use would be less than if an action alternative were implemented. Direct impacts would occur to mule deer from dispersed OHV use although to a lesser degree than if an action alternative was implemented.

Special Status Species including Federally Designated Threatened, Endangered, Proposed and Candidate Species, State Protected Species; and BLM Sensitive Species

Affected Environment

The Nevada Natural Heritage Program database and the Nevada Breeding Bird Atlas were queried for the presence of special status species and species of concern for the region. This list identified six species that have special status known to occur within the project area. These include the Sadas springsnail (*Pyrgulopsis sadai*), large gland Carico springsnail (*Pyrgulopsis basiglans*), raven lovage (*Lomatium ravenii*), small gland Carico springsnail (Pyrgulopsis bifurcata), Reese River phacelia (Phacelia glaberrima), and the bottlebrush suncup (*Camissonia*

boothii ssp. Alyssoides). Given primary vegetation communities occurring in the project area several additional BLM Sensitive bird species are also potentially found in the area including juniper titmouse (*Baeolophus griseus*), gray vireo (*Vireo vicinior*), ferruginous hawk (*Buteo regalis*), loggerhead shrike (*Lanius ludovicianus),* vesper sparrow (*Pooecetes gramineus*), and prairie falcon (*Falco mexicanus).*

The pygmy rabbit occurs throughout much of the Great Basin and is primarily associated with areas of tall dense sagebrush and friable soils suitable for establishing a burrow system. Habitat may exist in portions of the project area.

Sage grouse are year round residents of portions of the project area, utilizing various, sometimes widely separated, habitats seasonally for breeding, nesting, brood rearing, and wintering. Nine leks are known to occur within two miles of the project area, eight of which are known to be active. Nesting sites are normally located with two to six miles of the lek, with the majority of nests located within two miles. Optimum overstory nesting habitat is located in the Wyoming or mountain big sagebrush communities with a 25-30% shrub canopy cover. The majority of nests are located under sagebrush, but other shrubs such as bitterbrush and rabbitbrush are occasionally used. Critical wintering areas are primarily located on higher elevation, windswept, low sage ridges or flats when available, but sage grouse will use lowland big sagebrush communities when weather conditions prevent use of the higher low sage areas.

No other species in Nevada is more strongly associated with pinyon/juniper woodlands than is the pinyon jay. Considered to have a mutualistic relationship with these forests, this species forages primarily on, and is the principle disseminator of, singleleaf pinyon pine seeds. Pinyon jays nest colonially and are considered to exhibit strong nest-site fidelity, however, in general little is known about their nesting ecology within the state.
Additionally, juniper titmouse and gray vireo are also strongly associated with pinyon/juniper forests. Although specific habitat characteristics are not well delineated, both species are thought to prefer mature pinyon/juniper habitats. Typically gray vireo is found in drier conditions while juniper titmouse is often found at the interface between pinyon/juniper and riparian vegetation communities.

The remainder of sensitive bird species potentially occurring in the projects area are most closely associated with sagebrush habitats and the sagebrush-pinyon/juniper ecotone. These vegetation communities are used for both nesting and foraging habitat.

List of Special Status Species

Other Special Status Species
In addition to federally listed species, BLM also protects by policy (see 6840 section of the BLM Manual), other *special status* plant and animal species. The list includes certain species designated by the state of Nevada, as well as species designated as "sensitive" by the Nevada BLM State Director. Special status species known to occur, or which have a high probability of occurrence within the proposed action area include.

Scientific Name	**Common Name**

Mammals

Antrozous pallidus	pallid bat
Brachylagus idahoensis	pygmy rabbit
Corynorhinus townsendii	Townsend's big-eared bat
Eptesicus fuscus	big brown bat
Lasionycteris noctivagans	silver-haired bat
Myotis ciliolabrum	small-footed myotis
Myotis evotis	long-eared myotis
Myotis thysanodes	fringed myotis
Myotis volans	long-legged myotis
Pipistrellus heperus	western pipestrelle

Birds

Accipiter gentilis	Northern Goshawk
Aquila chrysaetos	Golden Eagle
Asio flammeus	Short-eared Owl
Asio otus	Long-eared Owl
Athene cunicularia	Burrowing Owl
Baeolophus griseus	Juniper Titmouse
Buteo regalis	Ferruginous Hawk
Buteo swainsoni	Swainson's Hawk
Centrocercus urophasianus	Greater Sage-Grouse
Falco mexicanus	Prairie Falcon
Gymnorhinus cyanocephalus	Pinyon Jay
Icteria virens	Yellow-breasted Chat
Ixobrychus exilis	Least Bittern
Lanius ludovicianus	Loggerhead Shrike
Leucosticte atrata	Black Rosy-Finch
Melanerpes lewis	Lewis's Woodpecker
Numenius americanus	Long-billed Curlew
Oreortyx pictus	Mountain quail
Otus flammeolus	Flammulated Owl
Pooecetes gramineus	Vesper Sparrow
Sphyrapicus nuchalis	Red-naped Sapsucker
Toxostoma crissale	Crissal Thrasher
Toxostoma lecontei	LeConte's Thrasher

Vermivora luciae	Lucy's Warbler
Vireo vicinior	Gray Vireo

Amphibians

none

Fishes

none

Snails

Pyrgulopsis basiglans	large-gland Carico pyrg
Pyrgulopsis pictilis	ovate Cain Spring pyrg

Plants

Eriogonum anemophilum	windloving buckwheat

Some of the more notable of these species are discussed here briefly:

Golden Eagle *(Aquila chrysaetos)*

The golden eagle is Nevada's largest resident bird of prey, sometimes weighing over twelve pounds and having a wingspan that may exceed seven feet. This bird is highly adaptable, has world-wide distribution and is a common year-long resident of the allotment. Golden eagles feed primarily on small mammals – jackrabbits, cottontails, and ground squirrels – though they are capable of taking larger prey.

Northern goshawk *(Accipiter gentilis)*

The northern goshawk may be, and certainly has been historically, a nesting-summer resident of the allotment. Nests are normally located in aspen trees overlooking flowing water. Aspen stands in Cottonwood Basin at the headwaters of Cottonwood Creek are certainly suitable habitat. Prey may include animals as large as geese or jackrabbits, but consists primarily of grouse and small birds.

Ferruginous hawk *(Buteo regalis)*

The ferruginous hawk is a nesting-summer resident of the allotment. A number of nests have been recorded over the years. Juniper trees are the preferred nesting sites of the Ferruginous hawk. Nests are normally constructed in lone juniper trees, which overlook large open areas on alluvial fans. Prey consists primarily of ground squirrels in the spring and early summer and jackrabbits in late summer and fall

Western burrowing owl *(Speotyto cunicularia hypugea)*

Lower elevations of the allotment provide nesting and hunting habitat for this relatively common species. Preferred nesting habitat for burrowing owls are areas previously dominated by dense stands of big sagebrush that have burned and converted to low grass species, with a few sagebrush trunks remaining for perches. Nesting normally takes place in abandoned badger burrows. Prey consists of rodents and insects, primarily beetles, during the breeding season.

Sage Grouse (*Centrocercus urophasianus*) are year round residents of the Carico Lake Allotment, utilizing various, sometimes widely separated, habitats seasonally for breeding, nesting, brood-rearing, and wintering. The Carico Allotment lies mostly within the Shoshone Population Management Unit (PMU). The latest population estimate (April 2004) for this PMU is between 913 and 1065 sage grouse. Ten of seventeen known leks (strutting grounds) in this PMU occur in the Carico Allotment. Nine of these were active in 2004. Riparian areas of the allotment are especially important to sage grouse during spring and summer. Sage grouse dependence on riparian areas as brood rearing habitat increases during drought, when such habitats become especially important sources of insects and forbs that are unavailable in upland habitats.

Pinyon Jay *(Gymnorhinus cyanocephalus):* Pinyon jays are primarily obligates of the pinyon pine woodlands and feed principally on pine nuts, which they store in fall and consume during winter and spring. The bird's local population varies from year to year with the success of the nut crop. They nest early after a good harvest; in poor years, they delay breeding until August. In winter, huge flocks wander erratically to lower elevation desert shrub or farmlands. Pinyon jays are colonial breeders, but only one or sometimes two or three pairs, nest in a single tree. In poor pinyon nut years, they may be found in other habitats within the Great Basin sustained by a variety of other pine seeds, nuts, berries, insects and small fruits. Pinyon jays prefer open PJ woodlands rather than dense stands.

Juniper Titmouse *(Baeolophus griseus or ridgwayi)*: As its name suggests this small bird, is an obligate inhabitant of pinyon-juniper woodlands, occurring as singles or pairs and does not typically form conspecific flocks. Nests are normally located in juniper trees, constructed in rotten wood or existing cavities are used. The juniper titmouse diet consists of insects in late spring and summer switching to pine, juniper, and other seeds during the fall, winter, and early spring. Research indicates that breeding juniper titmouse densities tend to drop with increasing tree density, increased proportion of junipers, canopy cover, and total bird density.

Pygmy rabbit *(Brachylagus idahoensis):* Pygmy rabbits are North America's smallest rabbits, and the only rabbits that commonly construct their own burrows, usually in stands of tall, dense sagebrush in locations with deep, loose soils. Pygmies are patchily distributed throughout most of the Great Basin. Though locally common, these animals have apparently never been generally abundant during historical times, and may have undergone serious population declines, habitat and population fragmentation, and local extinction in recent decades. Pygmy rabbits are sagebrush obligates and their decline is probably closely related to loss and degradation of sagebrush habitats.

Pygmies are not presently known to occupy the Carico Lake allotment though it is quite possible that small colonies exist there undetected. Pygmies have recently been sighted in the Fish Creek and Battle Mountains – mountains where they were not previously known to exist - during night-time sage grouse capture efforts.

A ground search of an old recorded site near the north end of the Carico allotment turned up no pygmies, though pygmies do inhabit a small area along Indian Creek, a few miles to the north of the allotment in the same mountain range.

Environmental Consequences

Effects Common to All Action Alternatives

No listed proposed or candidate species are known to occur in the project area. Pygmy rabbit, a special status species has the potential to occur within the project area. Indirect impacts would include an increase in vehicular and OHV traffic potentially increasing disturbance levels. Prior to trail development inventories for special status species including sage grouse and pygmy rabbits would occur. Species identified through this inventory would be avoided in order to mitigate impacts. Avoidance distances would be species dependent.

If discovered, pygmy rabbit habitat would be avoided, and if necessary, trails rerouted under any of the action alternatives.

The proposed action would increase the level of use within the project area potentially increasing disturbances to sage grouse reproduction, nesting and brood rearing. There would be disturbances associated with trail and trailhead construction. Similarly, the remainder of sensitive bird species occurring in the area would likely experience similar disturbance from trail construction and use.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

Under these alternatives trail development would occur in three phases. Phase 1 and 2 would be designed to avoid known sage grouse leks and potential nesting habitat. All new connector trails would be located to avoid riparian areas limiting impacts to species dependent on those areas. Upon the commencement of phase 1 construction, sage grouse movement and seasonal habitat use through radio telemetry would be documented in order to better identify nest and brood sites. Subsequent phases would utilize the gathered data in order to identify and implement adaptive management strategies that would minimize impacts to sage grouse. This could include avoidance of key areas with new trail construction, modification of management strategy, re-routing roads and trails, or withdrawing roads or trails. Following the completion of phase 2, monitoring would continue to occur for two additional years to determine adequacy of the trail

management program and to collect additional baseline data prior to the implementation of phase 3.

Subsequent phase development would occur as proposed only if monitoring thresholds, as established by the monitoring plan as found in Appendix D, were not exceeded as described earlier.

C. Minimum Trail Development, Fish Springs Mountains

Under this alternative trail development would not occur in areas known to be important sage grouse habitat. Prior to trail development inventories for special status species including sage grouse and pygmy rabbits would occur. Species identified through this inventory would be avoided in order to mitigate impacts. Avoidance distances would be species dependent. Impacts to sensitive species are not anticipated to occur through this alternative.

D. Maximum Trail Development

Under this alternative new connector and existing route trail development and use would occur in sage grouse habitat. This alternative would not be developed through a phased approach but would still call for pre-construction surveys and ongoing monitoring. This would result in a lower level of baseline data availability limiting the ability for timely and effective adaptive management strategies to be put into place such as avoidance of high sage grouse use areas through new trail construction. Impacts to leks, nesting and brood rearing activities would likely occur.

E. No Action Alternative

Under the No Action Alternative OHV use would continue in the area at a lesser extent than if an action alternative were implemented. OHV management would not occur in this area with no monitoring occurring. There would be no additional impacts to this resource.

Migratory Birds

Affected Environment

Migratory bird species utilize portions of the project area during some time of the year. Very common shrub nesting species include the sage thrasher, sage sparrow, Brewer's sparrow, horned lark and meadow lark. The loggerhead shrike, common nighthawk, various wrens, warblers, larks and swallows are all common.

Many migratory bird species are heavily dependent on healthy riparian systems. Seventy-seven bird species have been identified as either riparian obligate or riparian dependent in the western United States (Rich, 2002). Riparian under-story, mid-story, and canopy cover are requisite for a diverse migratory bird community. Woody components of the riparian systems, such as willows

and cottonwoods are important habitat features. The project area includes several springs and several perennial streams that represent important migratory and game bird habitat.

Environmental Consequences

Effects Common to All Action Alternatives –

Studies have shown that human disturbances including recreational trails impact bird species. One study found that near recreational trails species composition was altered, birds were less likely to nest near trails, and nest predation was greater near trails (Miller, 1997). Other studies suggest that increased recreational activities may result in reduced nesting success or nest abandonment. An increased level in disturbances associated with OHV use could result in a direct loss of habitat and an alteration of species composition in the area immediately adjacent to the trail segments. To a large extent, migratory birds nest in suitable good-condition habitats at or near carrying capacity. Mortality could occur if a loss or degradation of habitat occurs and adjacent habitats are already occupied or saturated.

Impacts to migratory birds would be reduced through the proposed mitigation measures such as avoiding sensitive riparian habitat and conducting surveys of migratory bird nesting and breeding habitat before conducting trail development activities. OHV use could result in loss of individual birds through increased predation, loss of habitat, or nest abandonment. The expected effect to any overall species population however, is expected to be minimal with the implementation of the mitigation measures outlined.

All new connector trails would be located to avoid riparian areas. Any trail construction activities for all alternatives in known or potential migratory bird habitat before July 15th would be surveyed for the presence of migratory bird breeding or nesting activities. No construction activities would take place in areas where breeding or nesting activities were taking place.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

Recreational OHV use would occur during the last 15 days of the nesting season for migratory birds due to the discouraged season of use from December 1st to June 30th. This would reduce the potential for impacts to migratory birds by limiting the level of use during sensitive seasons than if the Maximum Trail Development alternative were implemented. These alternatives could attract OHV use from other areas that currently see high levels of OHV activity, potentially reducing impacts to migratory bird habitat in nearby areas.

C. Minimum Trail Development Alternative and
D. Maximum Trail Development

Through these alternatives there would not be a discouraged season of use and recreational OHV use would occur during periods of migratory bird nesting. Disturbances from OHV use during the breeding and nesting season may result in higher levels of reduced nesting success or nest abandonment than if a discouraged season of use were implemented.

Riparian-Wetland Zones

Affected Environment

Riparian-wetland areas are the most productive and valuable resources found on public land in the arid west. Although these areas consist of less than 0.1% of the overall landscape in the project area, a disproportionately large percentage of animals (~70-80%) depend on them. These areas play an important role in restoring and maintaining the chemical, physical, and biological integrity of the waters located in the project area.

Riparian areas are distinguished by vegetation, which is a direct result of having access to available water. Riparian areas are defined by a band of green vegetation immediately adjacent to a source of water and are commonly classified into two categories: Lotic riparian areas are those associated with flowing waters (streams and rivers) and lentic riparian areas are related to areas of standing water or moisture (meadows, seeps, or shoreline), also referred to as wetlands. Riparian areas and wetlands are closely related in appearance, function, and attributes. The one distinction between the two classifications is the presence of hydric soils.

Wetlands are further defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soils. Wetlands include swamps, marshes, bogs and similar areas {40 CFR §230.3(t); 33 CFR §328.3(b)}. To determine if an area is a wetland, the following three conditions must be met: 1) presence of wetland hydrology; 2) the presence of or potential for hydrophilic vegetation; and 3) the presence of hydric soil.

Riparian-wetland systems provide key services for all ecosystems, but are especially important in dry regions, where they provide the main source of moisture for plants and wildlife, and the main source of water for downstream plant, animal, and human communities (Thurow 1991). These systems are highly dependent on streambanks and flood plains being in a vegetated and relatively undisturbed state. Rooted streamside plants retard streambank erosion, filter sediments out of the water, build up and stabilize streambanks and streambeds, and provide shade, food, and nutrients for aquatic and riparian species (Kauffman and Krueger 1984). Healthy riparian areas also act as giant sponges during flood events, raising water tables and maintaining a source of stream water during dry seasons. The result is a more stable streamflow throughout the year (US-GAO 1988).

Wildlife use riparian-wetland areas disproportionately more than any other type of habitats. Where site potential allows, multi-canopy riparian areas with trees, shrubs, grasses, forbs, sedges, and rush are extremely valuable as habitat for a wide array of wildlife species. Riparian-wetland areas, dominated by woody and/or herbaceous plant communities, are important water, cover, and food source for wildlife. The structure, food, and water provided in riparian areas make them the single most diverse and productive habitat for terrestrial as well as for aquatic wildlife. Consequently, riparian ecosystems are important repositories for biodiversity throughout the West (Belsky et al., 1999).

In addition, riparian-wetland areas are highly prized for economic values (municipal water, livestock production, mining, irrigation of crops, etc.) and other uses such as recreation (fishing, swimming, etc).

BLM policy and regulation (43 CFR §4180) require that all lentic and lotic systems on public land meet or exceed proper functioning condition.

Lotic systems with streamside riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:

> Width/depth ratio; channel roughness; sinuosity of stream channel; bank stability; vegetative cover (amount, spacing, life form); and other cover (large woody debris, rock)

Lentic systems (i.e. natural spring, seeps, and marsh areas) are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

The chemical, physical, and biological water constituents of both lotic and lentic systems are required to meet or exceed state water-quality standards.

The proposed action is located within the Middle Reese River Hydrological Area # 58.
The project area contains approximately 14.52-acres of lentic and 11.4-miles of lotic habitat. According to the 2001 Surface Water Inventory and Riparian Assessment for the Carico Lake Allotment riparian-wetland functioning condition assessments determined that 91% of the lentic and 86% of the lotic systems did not meet the minimum requirement of proper functioning condition. The primary casual factor for the low ratings was determined to be livestock and wild horses with roads as a secondary casual factor. Water quality on approximately 25% of the samples did not meet State beneficial uses water quality criteria for fecal coliform or turbidity. (See *Surface Water Analysis and Management Recommendations for the Carico Lake Allotment, 2000*; 2001 *Surface Water Inventory and Riparian Assessment for the Carico Lake Allotment; 2002,* and *Carico Lake Allotment Rangeland Health Assessment Conformance Determination, 2005* for additional and/or site specific information).

The Carico Lake Allotment Rangeland Health Assessment, Environmental Assessment NV-062-EA05-61 issued in September of 2005, issued a final decision restricting grazing of livestock and

setting an appropriate management level for wild horses on the Carico Lake Allotment. In the short time since implementation of the decision, riparian-wetland areas have made noticeable gains in riparian condition, but may take 5-10 years to attain a proper functioning condition.

Livestock, wildlife viewing, hunting, mining exploration, and associated off-highway vehicles are the primary uses occurring in this area that currently affect riparian zones. Several of the existing roads in the area travel to and through springs and riparian areas. These roads see low to moderate levels of use associated with recreation, hunting, mining exploration, and permitted grazing activities.

Environmental Consequences

Effects Common to All Action Alternatives –

Riparian areas are vulnerable to the effects of recreational vehicles and from people camping or picnicking.

The use of off-highway vehicles within riparian-wetland zones would result in the loss of vegetation and an increase in erosion. Increased recreational uses, such as camping and picnicking, along or on riparian-wetlands would also result in loss of vegetation, due to trampling, increasing the likelihood of erosion, siltation, and the prevention of bank stabilization.

Unrestricted recreational use can modify the hydrologic response of watersheds by reducing infiltration and vegetative cover, increasing stream channel/floodplain degradation, accelerating erosional processes, and increasing compaction. Recreational use can change, reduce, or eliminate vegetation through processes such as channel widening and degradation including the reduction of shade cover, which increases water temperature, changes in stream morphology, and addition of sediment due to soil erosion.

A managed OHV trail system could negatively affect riparian areas by potentially increasing recreational use. As described above in the Affected Environment section, present levels and type of use of riparian-wetland habitats is incidental. Moderate recreation and general use may be observed during the fall hunting season and sporadically by mineral exploration. General recreation pursuits and use for grazing management is normally very low. The area would see an increase in use through word-of-mouth, road signs, maps, or brochures which may result in an increase in impacts to riparian-wetland areas. Though some people may be drawn to riparian areas offering shade most users are likely to utilize the abundant shade available in the forested portions of the proposed trails away from riparian areas. Eventually, OHV use could spill over into riparian areas, away from the managed trails particularly those with shade.

These impacts can be documented through monitoring, sampling, and lab analysis. Through the development of mitigation measures and monitoring, the impacts to water resources can be minimized and recreation can coincide with other multiple uses of the public land. Existing routes that are currently affecting riparian areas and springs would be re-routed to reduce impacts

to wildlife, grazing, water quality, and riparian vegetation. New trail construction would be located to avoid riparian and spring areas.

E. No Action Alternative

Under the no action alternative, minor negative impacts to riparian areas would continue and could increase over time as dispersed recreation in the area gains popularity. None of the proposed re-routes or improvements would occur and a small number of users would continue traveling through riparian areas affecting the resource. There would be no OHV user education regarding potential impacts of OHV use to riparian areas.

Visual Resources

Affected Environment

The proposed project area is located within a remote portion of Lander County. The proposed trail system is primarily within Visual Resource Management (VRM) Class IV with a small portion of the project within Class III. The objective of Class IV is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. The Class III objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Environmental Consequences

Effects Common to All Action Alternatives –

All of the action alternatives would stay within the visual resource management criteria for the area based upon mitigation measures and site design.

E. No Action Alternative

Unmanaged OHV use would continue in the area at current levels, which may result in user created trails having some impacts to the visual resources of the area but would fall within the VRM designation.

Soils

Affected Environment

Soils within the project area are very typical of types found throughout the Great Basin and Nevada which exhibits sharp contrasts in physiographic characteristics. The project occurs primarily on the upper part of fan piedmonts, hills, and on mountains. The middle elevational zone (4,800-6.500 feet), the soils are comprised of the McVegas-Stingdorn-Old Camp series. These are shallow, well-drained and are found on the foothills and low mountains. They support bottlebrush squirreltail, Indian ricegrass, shadscale, bluebunch wheatgrass, Thurber needlegrass and Wyoming big sagebrush. The upper elevational zones (4,900-9,600 feet) consist mainly of soils known as the ltca-Reluctan-Punchbowl group. These are found on moderately steep to steep locations (mountains) and are shallow to moderately deep, well-drained soils. Precipitation varies from 10-30 inches and supports plant communities dominated by Idaho fescue, Thurber needlegrass, black sagebrush, Indian ricegrass, bluebunch wheatgrass, mountain big sagebrush, single-leaf pinyon pine and Utah juniper.

Environmental Consequences

Effects Common to All Action Alternatives –

Implementation of any of the action alternatives would result in an increased disturbance to soils in relation to new trail construction and is directly proportional to the number of miles of new trail construction and number of trailheads proposed (see graph 3-1 on the following page). This is calculated by the number of new miles times a four foot wide trail corridor. Disturbances to soils would result in potential for increased erosion and compaction.

New trails would be designed to be flowing, highly sustainable, and self-draining where possible, minimizing erosion and maintenance. Trails developed in soils that are particularly susceptible to developing into pockets of deep powdered dust would be surfaced with crushed rock or other suitable material before dust pocket formation. All areas where soil disturbance occurs from trail development would be re-seeded with a native-seed mix upon completion of construction activities. Additional trail management techniques and strategies including the use of geo-textiles, trail hardening, drain-dips, and reverse grade dips would also be employed on sections of trails that are displaying excessive levels of impacts to soil resources.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

These alternatives would result in approximately 25 acres of soil disturbance in Phase 1, additional disturbance of 16 acres if Phase 2 were implemented, and an additional disturbance of 21 acres if Phase 3 were implemented as proposed for a potential total disturbance of 62 acres. The development and use of the trails under these alternatives would result in a proportionally greater number of areas where compaction of soils along the routes would occur than the

Minimum Trail Development or No Action alternatives but fewer than the Maximum Trail Development alternative. The compaction of soils through OHV use would reduce infiltration and permeability rates of the soil types affected along existing and newly created routes.

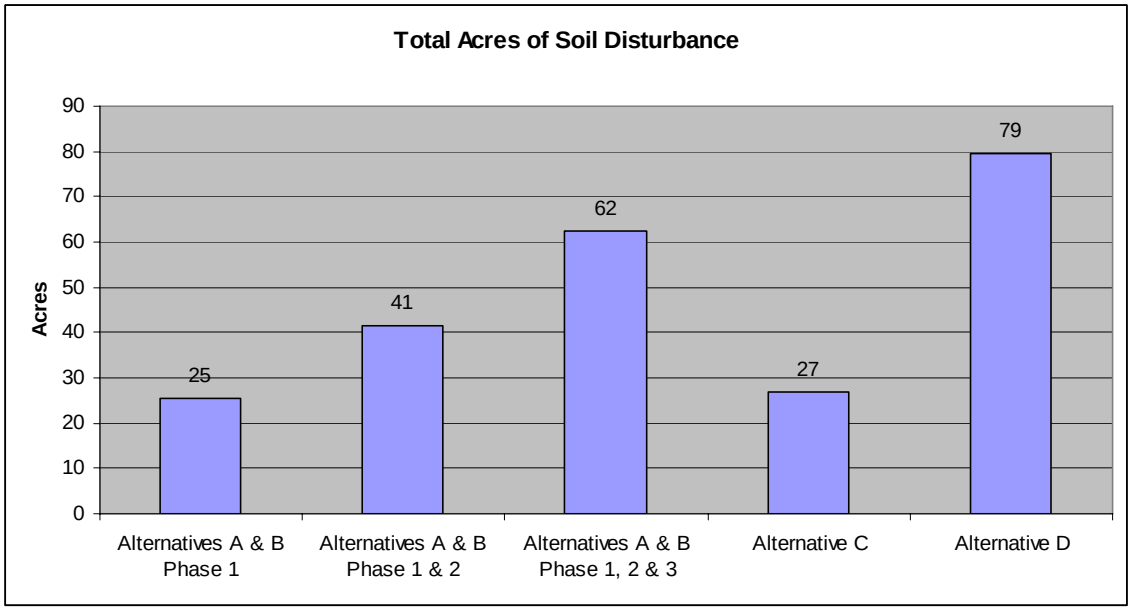
C. Minimum Trail Development, Fish Creek Mountains

This alternative would result in approximately 27 acres of soil disturbance. The focused nature of this alternative would concentrate the majority of the OHV use onto a limited number of trails. This would lead to increased pulverization of soils due to a higher frequency of disturbance, increased dust production, and difficult maintenance. The development and use of the trails under this alternative would result in a greater number of areas where compaction of soils along the routes would occur than the No Action alternatives. Compaction of soils reduces infiltration and permeability rates of the soil types affected.

D. Maximum Trail Development

This alternative would result in approximately 79 acres of soil disturbance. OHV use would be dispersed throughout the trail system resulting in fewer disturbances to soils on any given route. The development and use of the trails under this alternative would result in a proportionally greater number of areas where compaction of soils along the routes would occur than any of the other Action or No Action alternatives. Compaction of soils reduces infiltration and permeability rates of the soil types affected.

Graph 3-1



Acres of soil disturbance is based upon the number of new miles of trails proposed per alternative times a four foot wide trail corridor and the number of trailheads approximated at 5 acres in size each.

E. No Action Alternative

OHV use would continue in this area at a lesser extent than if an action alternative were implemented. Soil displacement and erosion would occur at the current levels or slightly increase as use increases over time. With no trail systems available for the user some route proliferation would likely occur resulting in some increase in soil displacement. Maintenance or improvements to existing routes would occur less frequently or not at all depending on the route and the severity of the maintenance need resulting in an increase in local soil erosion where problems currently exist.

Recreation

Affected Environment

Recreational activity in and around the project area consists of Off-Highway Vehicle activity, hunting, camping, and the occasional horseback rider. The Mill Creek Recreation Area, managed by the BLM, is within 1 mile of the project area and accommodates camping, fishing, and hiking opportunities.

Environmental Consequences

Effects Common to All Action Alternatives –

People that prefer non-motorized activities such as hiking and horseback riding would not recreate within close proximity of OHV trails during periods of high OHV use. Portions of the trail system would also be suitable for non-motorized recreation and result in an increased level of use of this form of recreation.

A. Proposed Action, and
B. Phased Development, Limited Use Designation

Based on OHV user preference studies and consultation with OHV management specialists these alternatives would provide an adequate level of trail opportunities that should meet the needs of the targeted (local and regional day use) current and future OHV use. The variety, number, lengths, and difficulty levels would result in fewer encounters per outing, higher trail quality, and a higher level of user satisfaction. This would also increase the number of potential trail opportunities for mountain biking recreation by providing more low distance trail opportunities that would be more suitable for this type of recreation. Large areas within the assessment area would remain free of motorized routes and continue to provide for non-motorized recreational activities such as hiking, hunting on foot, and horseback riding. Under this alternative the Fish

Creek Mountains portion of the assessment area would remain relatively free of motorized routes.

C. Minimum Trail Development, Fish Creek Mountains

The concentrated nature of this alternative would result in a lower quality OHV recreation experience due to an increased number of encounters, lower trail quality due to increased trail impacts, and fewer options for large groups with various levels of skill. The higher user density would not provide suitable opportunities for non-motorized uses such as mountain biking and hiking in the trail development area. Since no OHV trails would be developed in the Shoshone Range portions of the assessment area under this alternative greater non-mechanized opportunities would remain than under any of the other action alternatives.

D. Maximum Trail Development

This alternative would provide an adequate level of trail opportunities that should meet the needs of the targeted (local and extended regional, 2-3 day use) current and future OHV use. The variety, number, lengths, and difficulty levels would result in fewer encounters per outing, higher trail quality, and a higher level of user satisfaction. This would also increase the number of potential trail opportunities for mountain biking recreation by providing more low distance trail opportunities that would be more suitable for this type of recreation.

E. No Action Alternative

Off-highway-vehicle recreation use may increase through individual discovery of the area and word of mouth.

Range

Affected Environment

Livestock have historically and currently graze the areas described for the Proposed Action and Alternatives. There are three grazing allotments that could potentially be affected by each of these actions (see attached project maps). The allotments, permittees, and permitted use are described in table 3.1.

Table 3.1

Allotment	Permittee	Use Area	Livestock Kind	Season of Use
Argenta	Julian Tomera Ranches, Inc.	--	Cattle	03/01 – 02/28
		--	Sheep	02/16 – 02/28
		--	Horses	03/01 – 12/31
	C Ranches	--	Cattle	03/01 – 02/28
		--	Cattle	3/01 – 03/31
		--	Cattle	11/01 – 02/28

	Ellison Ranching Co.	--	Sheep	04/01 – 09/30
	Chiara Ranch	--	Cattle	03/01 – 11/30
	Henry Filippini	--	Cattle	03/16 – 12/31
Carico Lake	C Ranches	Cortez	Cattle	02/01 – 03/31
		Shoshone Mountain (East Side)	Cattle	04/01 – 09/30
		Carico Lake Valley	Cattle	07/01 – 11/15
			Cattle	11/16 – 03/31
	Ellison Ranching Co.	Moss Fire, Cedars, Cedars North & South, Wood Canyon Pasture	Cattle	12/01 – 04/30
		Harry Canyon	Sheep	11/01 – 02/28
		Shoshone Mountain (West Side)	Sheep	03/01 – 06/30
		Moss Fire	Sheep	Annual Approval for cheatgrass control during spring months
		Fish Creek Mountains	Sheep	11/01 – 04/30
	Julian Tomera Ranches, Inc.	Julian Tomera Ranches, Inc. (portions of Shoshone Mountain & Carico Lake Valley)	Sheep	03/01 – 05/31
	Filippini Ranching Co.	FRC	Cattle	10/01 – 04/30
Austin	Silver Creek Ranch, Inc.	Cedars	Cattle	03/01 – 02/28

Use depicted above is not all inclusive of the permittee's grazing preference; only those areas and seasons of use that would be affected by the proposed action were included in the above table. Specific use areas have not been developed for the Argenta allotment and the permittees run in common. There are currently seven permittees that are authorized to graze this allotment; however, the Proposed Action and Alternatives that include the Argenta allotment would impact only the ones listed above.

Use areas were implemented through the 2005 Final Multiple Use Decision for the Carico Lake Allotment. Please refer to Appendix A: Maps, for a location of the use areas affected by the Proposed Action and Alternatives.

Environmental Consequences

Effects Common to All Action Alternatives –

Implementation of any of the action alternatives would result in a decrease in the amount of available forage based upon the number of miles of new trail construction proposed. The replacement of gates with OHV cattleguards or full size cattleguards would remove the possibility of gates being left open. It is expected that these trails would result in an increased likelihood of impacts to livestock management. Increased disturbance to livestock operations with an increase in OHV use could result in user conflicts and changes in grazing patterns. Changes in grazing patterns may result in increased grazing in other portions of the allotment that are not directly impacted by the OHV trail development, which may result in use in areas outside the permitted time frames for particular use areas. Cattle are expected to utilize these trails resulting in possible distribution problems across the project area. Sheep in particular may

discover these trails and deviate from the concentrated movement of the herd as a whole. Therefore the livestock operator would have an increased likelihood of losing livestock during the authorized period of use.

A. Proposed Action

The northern end of the assessment area of the Proposed Action consists of approximately 6,250 acres of the Argenta Allotment. The majority of the assessment area consists of 138,900 acres of the Carico Lake Allotment. The southern end of the assessment area consists of 14,850 acres within the Austin Allotment. See Table 3.2 for breakdown of OHV trail mileages by allotment.

Table 3.2

Alternatives A&B	Phase 1		Phase 2		
Allotment	*New Trail*	*Existing Routes*	*New Trail*	*Existing Routes*	*Acres*
Argenta	20	7	0	2	6250
Carico Lake	40	55	10	17	138,900
Austin	5	7	22	0	14,850

The Proposed Alternative would result in an increase in encounters between the OHV enthusiast and livestock. Although trails within the Argenta Allotment are limited, they occur in an area where livestock occurs year-round. The allotment is considered a common use allotment without official use area designation. However, the operators within this allotment attempt to manage their livestock in such a way that livestock are kept separated from other operators' livestock within the allotment. The Proposed Action is expected to impact grazing management, particularly cattle use, by limiting the operator's ability to keep their herd within a particular area during the period designated for OHV use. Herding of sheep also occurs within the project area during the proposed season of use. The control of these sheep may be impacted with the increased encounters with the OHV enthusiast.

Lambing operations occur within the Carico Lake Allotment from April 1st through June 30th. Encounters between sheep and OHV users are expected to be minimized due to discouraging use of the trail system from December 1st through June 30th. Any use that occurs from March 1st through June 30th would impact the lambing season, which would be detrimental to the sheep operation as a whole (increase in stress on lambs, increase in the level of abandonment, etc…). Although seasonal discouragement would occur under this alternative, it is expected that sheep would utilize these trails which could impact grazing management and increase seasonal loss of individual animals within the herd.

Under phase two, cattle grazing that occurs on the east side of the Shoshone Mountain Range use area is expected to be minimally impacted with the closure of the trail systems from December 1st through June 30th. Permitted use in this area currently is from April 1st through June 30th. However, cattle use is expected to be impacted with the implementation of phase two within the Carico Lake Valley use area. The season of use for this area is from July 1st through March 31st. The major implications associated with the trail system that may occur could be distribution

problems with livestock within permitted areas and the ability to properly manage livestock by keeping them in designated use areas. Currently, the season of use for the east side Shoshone Mountain Range limits use of riparian areas during the hot season by moving cattle to the lower elevations of the allotment by June 30th. It is expected that OHV use would disrupt grazing activities within the portion of the Carico Lake Valley use area, which may result in grazing by livestock within portions of the east side of Shoshone Mountain Range during seasonal use periods in which the permittee is not permitted to graze. This may result in the possibility of resource degradation, particularly to riparian areas, along with possible trespass issues.

Phase two would also impact the Cedars use area of the Austin Allotment. Cattle use currently occurs within the Austin allotment on a year-round basis. However, cattle use within this area is limited due to minimal watering sites. However, due to the location of the staging area, it is expected that increased encounters would occur. Private land occurs just south of the staging area, which is utilized by livestock during portions of the time frame that the project area would be subject to increased OHV use.

B. Phased Development, Limited Use Designation

The allotments that would be impacted by this alternative would remain the same as the Proposed Action Alternative (refer to Table 3.1 and 3.2). This alternative would continue to increase encounters between the OHV enthusiast and livestock. However, limited use designation would formally limit motorized use of the assessment area to those motorized routes in existence at the time of designation. This would provide additional measures to ensure that OHV use does not occur during critical calving and lambing seasons that would impact the primary operator within the project area (Ellison Ranching Company). Any use that occurs from March 1st through June 30th would impact the lambing season, which would be detrimental to the sheep operation as a whole. Other operators with the project area would also benefit from formally limiting motorized use to designated routes. By limiting the opportunity for use outside the designated season, management of livestock would not be as compromised as it is in the Proposed Action Alternative.

C. Minimum Trail Development, Fish Creek Range

The focused nature of this alternative and lower level of new trail construction would result in a higher number of encounters between OHV users and grazing permittees resulting in a higher potential for multiple-use conflicts. This alternative may also lead to a greater degradation of existing routes utilized by grazing permittees for day-to-day operations. Although seasonal discouragement under this alternative would not occur, impacts to range operations may be impacted to a lesser degree than described in the Proposed Action Alternative and the Phased Development, Limited Use Designation Alternative. Under this alternative, two operators would be impacted: Ellison Ranching Company and Filippini Ranching Company. Both operators are authorized use within the Fish Creek Range but use does not occur on a year-round basis. It is expected that OHV use would be minimized even without a seasonal closure during the operational periods authorized for each operator. Livestock use occurs on an annual basis

between 10/01 – 04/30 (refer to Table 3.1 for individual operator use periods). OHV use would be expected to be minimized from 11/01 through 3/31 depending upon snow levels and length of the winter season of each year, therefore limiting the overall encounters between the OHV enthusiast and livestock.

A division fence has been constructed to separate use between Ellison Ranching Company and Filippini Ranching Company. This fence occurs on the southern-most portion of the proposed project area for this alternative. It is expected that the possibilities of this fence being breached would increase with an increase in OHV use if the enthusiast deviates from designated trails. This would impact grazing management by increasing the likelihood of livestock being outside designated use areas and therefore increasing the occurrence of livestock trespass and possible resource degradation.

D. Maximum Trail Development

The northern end of the assessment area of this alternative consists of approximately 6,250 acres of the Argenta Allotment. The majority of the assessment area consists of 138,900 acres of the Carico Lake Allotment. The southern end of the assessment area consists of 14,850 acres within the Austin Allotment. See Table 3.3 for breakdown of OHV trail mileages by allotment.

Table 3.3

Alternative D			
Allotment	*New Trail*	*Existing Routes*	*Acres*
Argenta	20	9	6250
Carico Lake	86	83	138,900
Austin	27	7	14,850

This alternative would result in more use on existing routes increasing the number of encounters between livestock and the OHV enthusiast and the potential for conflicts. Most of the conflicts would be to sheep operations. Lambing operations would be directly impacted from March 1st through June 30th. As lambing operations are disrupted, the entire success of the ranching operation is jeopardized. Under this alternative, it is expected that OHV use would increase during the lambing season due to enhanced riding conditions during these time frames.

Cattle operations would be impacted on a year-round basis under this alternative, which would directly impact the management of cattle. It is expected that increased exposure to the OHV enthusiast throughout the year would result in disruptions to cattle operations which would result in possible impacts to natural resource management.

E. No Action Alternative

Under the No Action Alternative the project area would continue to see OHV use but to a lesser extent than if an action alternative were implemented. Under this alternative cattleguards would not be installed in association with the project and user education regarding ranching on public lands would not be implemented or disseminated to the public. OHV use would continue to be

unmanaged, resulting in conflicts between livestock operations, rangeland management and use by recreationists.

Vegetation

Affected Environment

According to the vegetation analysis derived from satellite imagery, based on the National Vegetation Classification System, the majority of the proposed action falls under four categories: xeric mixed sagebrush shrubland, montane sagebrush steppe, big sagebrush shrubland, and pinyon-juniper woodland. These classifications are typical for the mid-elevation benches of the mountain ranges in the area. The montane sagebrush steppe is the most affected by the proposed action, which occurs at higher elevations. Other vegetative communities that would be affected by the proposed action are invasive annual grasslands, greasewood flats, and salt-desert shrub communities.

Vegetative communities and their condition were also derived from key management area site descriptions from the 2005 Carico Lake Evaluation and Rangeland Health Assessment. The majority of the vegetative communities represented by key management areas that occur within the Proposed Action and other alternatives were found to be missing key perennial grasses, are shrub dominated, and have halogeton and cheatgrass in the understory.

Quaking aspen is found in some of the riparian zones, with most of the stands occurring in the Cottonwood Basin (aka Elephant Head). They represent the highest biodiversity of any of the vegetative communities within the project area and some stands are remnant communities which once occupied more extensive areas. Some aspen areas identified as being in decline have been protected by the BLM with fence exclosures (i.e. constructed in 2002).

Environmental Consequences

Effects Common to All Action Alternatives –

Key management areas (KMAs) within the project areas provide short and long-term information regarding the health of the vegetative communities and the effects of livestock grazing, wildlife use, and wild horse use. New trails would not be constructed within ½ mile of these areas. For KMAs that occur along pre-existing routes, the OHV enthusiast would have to be educated as to their importance and stipulated not to disturb these areas. The KMAs would be utilized to determine impacts from any OHV use that occurs outside the designated trail routes.

Native shrubs, grasses, and smaller trees would be removed in all action alternatives in direct proportion to the amount of ground disturbance from trail and staging area construction and any road improvements. The disturbance of vegetation in relation to trail and trailhead construction would alter the composition of plant species in these areas. The alteration of the vegetative

communities would lead to an opportunity for annual invasive and/or noxious weeds to proliferate. This would have the possibly of reducing the condition of the associated vegetative community and rangeland health as a whole. New trail construction would avoid aspen, elderberry, willow, serviceberry, chokecherry, and mountain mahogany and would not be removed through any of the action alternatives.

During the summer use period for all alternatives, vegetative communities would be in the later stage of development and possibly cured. The possibility of fire potential is increased, therefore increasing the possibility of fires within the project area.

Aspen stands provide shade and are usually associated with streams and springs. Therefore, they are very attractive resting and camping areas for recreationists, including OHV users. Even though the actual proposed routes may not go through these areas, if they are in sight of some of the aspen stands, OHV users could migrate to them.

OHV travel through aspen communities could cause damage to young sprouts and larger saplings and pole size trees from trampling and collisions. Camping in these areas could result in the cutting down of trees for firewood, even though this is prohibited in the Land Use Plan. These actions could effects the remnant stands which still exist in some of the proposed project areas.

Organized OHV trails and related activity do have the chance to increase human caused fire starts which could negatively impact vegetation resources. In order to mitigate this possible increase and associated impacts fire prevention information would be provided at trailhead areas, through other materials associated with the project, and through the existing fire restriction process.

E. No Action Alternative

OHV use would continue in this area at a lesser extent than with the implementation of any of the action alternatives. Unmanaged use would, over time, lead to an increasing number of user created routes that would lead to a reduction in vegetation.

Wild Horses

72% of the proposed project area is within the South Shoshone Herd Management Area (HMA) which is located in the central portion of the Carico Lake Allotment, just west of the Bald Mountain HMA and covers approximately 133,099 acres of the Shoshone Mountain Range. At the widest points, the HMA is over 30 miles long and 13 miles wide. Elevations range from approximately 5,500 feet at the valley bottoms on the east and west sides of the HMA to over 8,400 feet at the top of the Shoshone Range. A small portion of the HMA (approximately 11%) exists within the Austin Allotment south of the Bob Town Fence, which serves as the southern boundary of the Carico Lake Allotment. The area is known as the Cedars Pasture, and has an AML of 0 wild horses established through Final Multiple Use Decision in 1995. The majority of

the HMA is within the Carico Lake Allotment. AML for this portion of the HMA was established as a range of 60-100 wild horses in 2005.

The most recent aerial census was conducted in March 2005. The current 2007 population based on an average annual increase of 12% is 336 wild horses within the HMA.

Management of wild horses involves periodic census activities, which typically use helicopter to inventory the HMAs, as well as on the ground monitoring of habitat, animal health and distribution. The majority of wild horse foals are born between March 1 and July 1 annually. When census and other data indicate that the AMLs have been exceeded, gathers are planned to reduce the populations within HMAs to the AML in order to prevent deterioration of the range associated with an overpopulation of wild horses. The South Shoshone HMA is currently scheduled to be gathered in summer 2007, and the Gather Plan EA will be issued later this year.

HMAs are areas identified in Land Use Planning for long term management of wild horses or burros, and are set aside by congress as a Special Management Areas for a federally protected species.

Wild horses utilize mountain ranges including mountain browse, meadow, and pinyon and juniper vegetation types interspersed with perennial streams and springs. Wild horses also use sparsely vegetated, rocky mountains, with limited water. Winter habitat typically consists of valley bottoms and lower elevations that may support winterfat or other salt desert shrub vegetation. The primary vegetation types inhabited by wild horses consist of Wyoming or Mountain big sagebrush with an understory of perennial grass.

The boundary of the South Shoshone HMA is not fenced, and wild horses are not prevented from moving outside of HMA boundaries. Historically, the majority of wild horses have been located within the HMA boundaries. In recent years, wild horses have frequently been located outside of the South Shoshone HMA in the southwestern portion between the Shoshone Range and State Highway 305.

Wild horse locations as observed during census and distribution flights since 1974 indicate large fluctuations of wild horse distribution across the HMA, which is likely a result of snow depth and other seasonal factors, water and forage availability, harassment of wild horses, and overall population size and density. Through interpretation of census and distribution flight data, some generalizations in distribution patterns can be made. These patterns are based on existing populations at the time the flights were conducted, and may not represent distribution following achievement of an appropriate management level (AML).

Patterns of wild horse concentration have been documented in the southern portion of the HMA, with few wild horses documented in the northern portion of the HMA north of Elephant Head or Moss Creek. In 1998, 77% of wild horses were located on the valley bottom west of the Shoshone Range, south of Moss Creek. In 2001, 68% of the wild horses were located south of Elephant Head, particularly between the southern boundary of the Carico Lake Allotment (Bob Town Fence) and Wood Canyon. Similarly, 64% of the wild horses were observed in the southwest portion of the HMA during the March 2005 census.

During the most recent census flights in March of 1998, 2001, and 2005, few horses were located on the eastern slopes of the Shoshone Range. Wild horses appeared to be at their most uniform distribution during the summer flights when the higher elevations appear to be more frequently utilized; however, snow free slopes to 8,000 feet are commonly utilized in winter.

Since 1998, the population of the South Shoshone HMA has decreased according to census data. The South Shoshone HMA population has never been reduced through a BLM wild horse gather. The cause of this decline is unknown. In fact, the wild horses in South Shoshone appeared to be very healthy during the last census flight in March, 2005, which is typically the leanest time of the year between winter and spring. Snowfall events or drought years may have increased mortality rates within the herd. Mountain lion predation and illegal shootings may have also influenced the population.

Census and distribution flights and documented patterns of wild horses suggest that most springs and riparian areas in the northern portion of the HMA have been infrequently utilized and minimally impacted by wild horses. Water sources are not as plentiful in the southern portion of the HMA where the majority of the wild horse concentration occurs. The Cedars Springs located north of Wood Canyon, and Cottonwood Creek are used by wild horses.

Refer to Appendix A for Maps which display the HMA in relation to the various OHV trail development alternatives.

Environmental Consequences

Effects Common to All Action Alternatives –

The following table displays the miles of trail that would exist within the proposed OHV management area under the various Alternatives, by area. The miles located within the Shoshone HMA that could impact wild horses are highlighted in the table, with new trail construction indicated in red.

Table 3.4

Allotment	HMA	Proposed Action			Alt B			Alt D		
		Miles of Trail								
		New	Existing	Total	New	Existing	Total	New	Existing	Total
Argenta	None	20	9	29	20	9	29	20	9	29
Carico Lake	**Inside South Shoshone HMA**	**41**	**58**	***99***	**41**	**58**	***99***	**77**	**69**	***145***
	Outside South Shoshone Boundaries	11	13	24	11	13	24	11	14	45
	Total	52	71	123	52	71	123	107	83	190

Austin	South Shoshone (Cedars Pasture – AML 0 – no management for wild horses	25	7	32	25	7	32	25	7	32
Total Miles of Proposed Trail		**97**	**87**	**184**	**97**	**87**	**184**	**133**	**99**	**232**

Alternative C Minimum trail development involves trail development outside of a Herd Management area and outside of where any wild horses are managed and therefore will not be addressed.

All of the action alternatives would result in an increase in the level of OHV use in the Herd Management Area. This increased use would result in the avoidance of trail areas by wild horses during periods of use and would result in short periods of increased energy expenditure to avoid recreation users. Alternatives A, B, and D involve 112,000 acres or 84% of the 133,000 acre HMA. There are currently 165 miles of existing road within the HMA. The Proposed Action and Alternative B would involve the development of 41 miles of new trail which equates to approximately 25 acres of disturbance and the use of 99 miles of existing roads. Alternative D would involve 77 miles of new trail which equates to approximately 47 acres of disturbance and 145 miles of existing road within the HMA boundaries.

The HMA is scheduled to be gathered in July 2007, which would reduce the population of the HMA from 336 to 60 wild horses. This would result in approximately 2,217 acres per wild horse within the HMA which provides opportunities to avoid OHV users. The Monitoring Plan identifies that a wild horse census be conducted during the fall of 2007 to obtain information about the distribution of the population following the gather. Distribution flights would be conducted through the next two years to further obtain population and distribution data on the herd while Phase I is implemented. This data would be analyzed prior to implementation of Phase II to address potential impacts to wild horses, and to modify the implementation of Phase II if necessary.

The increased presence of OHV users within the HMA would most likely cause shifts in the historical distribution utilized by wild horses as they leave the southern portion of the HMA. This could result in increased use of other portions of the HMA and potentially degrade water or forage resources due to a potential for increase in concentration of horses. Increases in OHV use could also increase the number of wild horses that move outside of HMA boundaries. Conversely, OHV use could result in improving distribution of wild horses throughout the HMA as wild horses previously concentrated in certain locations, move throughout other areas of the HMA to escape disturbance by OHV users. OHV use outside of the HMA boundaries could also cause fewer wild horses to reside outside of the HMA.

Between 75 and 120 users could be expected to use the project area during the weekends during the encouraged season of use, averaging 40 users per day. The users would be present within the HMA between the average hours of 8am to 5 pm daily. Most wild horses typically reside out of view of roads, and are obscured by rolling terrain and other topographic features. Sounds from Off-Highway Vehicles would likely be heard from no less than 1 mile away. As a result, wild horses would likely change patterns of use within the HMA to avoid trails and the noise

associated with OHV users, particularly on weekends. OHV use that does occur near water would deter wild horse use from these areas where water is already limiting. However, mitigation would include locating new connector trails in locations that avoid water and riparian areas.

Following the 1999 wild fires that burned portions of the South Shoshone HMA, Battle Mountain Field Office rehabilitation specialists used ATVs to conduct much of the project inspection work for seeding and fencing efforts. During this time, encounters with wild horses involved numerous occasions when large groups of horses would be observed running as ATVs approached, even though low vehicle speeds were maintained. In fact, it was apparent that wild horses were able to hear ATVs from some distance as indicated by dust caused by running horses observed no less than one mile away on various occasions when project work required workers to approach on ATVs.

Information has been collected from a case in Colorado where wild horse and OHV conflicts exist. "One impact of the OHV use is seen in a decrease in the distribution of horses in their habitat". When census data prior to 1995 was compared to current data collected in 2005, it was noted that wild horses were avoiding the portion of the HMA where OHV use occurs from as early as February through summer. The census data prior to 1995 identified even distribution of wild horses across the HMA. Other impacts identified included soil disturbance in certain drainages, and reduced water holding capability of ponds where OHV users rode through them. OHV use was also identified as resulting in orphan foals when bands of horses spooked from motorcycle users. Unsubstantiated reports have also been received of riders chasing wild horses.

OHV use that occurs between January and mid summer could result in orphaned foals caused by mares that abandon foals in response to disturbance or bands that spook and either trample and/or leave foals behind. Any activities within HMAs this time of year require extra care to avoid disturbance to sensitive mares. BLM wild horse gathers are not conducted between March 1 and July 1 to avoid injury and death to young foals. Young foals and newborns are occasionally encountered as early as January and as late as mid July. Foals may be born through mid summer and are weaned in late summer to early fall. Increases of OHV use within the HMA could increase orphaned animals through mid summer.

Indirect impacts would occur in relation to vegetation removal associated with new trail construction. This would minimally decrease potential forage availability. Increased OHV activity could also have indirect impacts to the BLM's ability to effectively gather wild horses during future helicopter removal efforts as wild horses become accustomed to motorized vehicles and human presence. In cases where illegal human harassment of wild horses by motorcycle, snow machine and other motorized methods have been suspected or anonymously reported, these herds have been especially difficult to gather. Wild horses were highly evasive, and fractious in these situations which resulted in especially problematic capture operations, increased stress to wild horses and increased injuries. Increased OHV use throughout the HMA could be expected to have similar consequences, though educational efforts would likely moderate intentional, illegal human harassment of the animals.

A. Proposed Action

Under the Proposed Action, the trail system would be implemented in phases. Phase I would involve development of new and existing trails within the far north portion of the HMA and outside of the HMA boundaries in the Argenta Allotment. Approximately 40 miles of new and existing roads and trail would be developed within the HMA (refer to Appendix A which displays the proposed trails by phase).

Phase II would involve development of 14 miles of new and 36 miles of existing trails within the central and southern portion of the HMA. Phase III would involve the development of 31 miles of new and 19 miles of existing trails within the northern, central and southern tip of the HMA which is not managed for wild horses due to the small size of the area, and lack of water.

Wild horses have not typically utilized the northern portion of the HMA in the vicinity of the trails and roads proposed to be developed under Phase I of the Proposed Action. Therefore, Phase I would be expected to have minimal impacts to wild horses, and negligible changes in distribution and use would be expected in the area.

Based on historic distribution and census data, sixty four to 77% of the wild horse population has historically inhabited the west and southern portions of the HMA. This coincides with the much of the project area identified for increased OHV use in Phase II and III. Impacts to wild horses would be most prevalent under the Phase II and Phase III. The largest portion of the HMA would be developed and used by OHV, causing shifts to distribution of wild horses throughout the HMA.

The proposed action calls for a discouraged season of use from December 1st to June 30th. This could reduce the level of recreational OHV use during foaling season within the project area; however, OHV use would be increased over what would be expected under the No Action Alternative. Additionally, because OHV use would not be prohibited, but discouraged during this period, OHV users could still be present during the foaling period, and foals could be orphaned or injured as a result.

The use and development of 99 miles of trail within the HMA could affect as much as 63,000 acres of the HMA, through disturbance to wild horses by increased and frequent OHV use of the area.

B. Phased Development, Limited Use Designation

Alternative B involves the same phased in development and miles of new (41) and existing trails (58) as identified under the Proposed Action. However, the discouraged use period would be replaced by a Limited Use Designation, which would formally limit OHV use on newly constructed routes from December 1 to June 30. Because use would be formally limited during this period, slightly less impacts to wild horses could be possible under this alternative, and the potential for increased orphan foals reduced when compared to the proposed action due to the formal limitation through this alternative.

D. Maximum Trail Development

This alternative involves 77 miles of new, 69 miles of existing and 145 total miles of developed trail within the South Shoshone HMA, and would result in the most OHV use across the Shoshone Range of all alternatives. This would increase the overall level of roads/trails within the HMA by 210%, and could affect up to 93,000 acres of the HMA through disturbance to wild horses from OHV use. Implementation would not be phased in, and this alternative would not involve a seasonal discouraged use period from December 1 to June 30.

The additional miles of new trail proposed under this alternative would be located primarily in the northern portion and the eastern portion of the HMA in addition to the new trails proposed under Alternative A and B. These additional miles of trail and expanded area of proposed activity would have increased impacts to wild horses than Alternative A and B. Wild horse distribution and free roaming behavior could be modified and reduced. OHV activity would occur nearly throughout the entire extent of the HMA, and depending upon the amount of activity at any given time, may not leave many undisturbed portions of the HMA for wild horses. The population as a whole could suffer reduced health and vigor as a result of increased disturbance through both miles of trail and lack of seasonal limitations or discouraged use periods. Reduced body condition could occur as wild horses are detracted from using better foraging areas and water sources. Abortions could occur from mares being disturbed and possibly spooked by increased presence of OHV users. The largest number of orphan foals would be expected to occur under this alternative. Depending upon the degree of OHV activity within the HMA, this alternative could result in SERA LUP objectives and RAC Standards for wild horses not being achieved.

Other impacts of the maximum trail development alternative would be that the chronic OHV use across the HMA would over time cause wild horses to become more difficult to gather by helicopter. Additional disturbances associated with OHV use could cause wild horses to become accustomed to human disturbance and motorized vehicles. As a result, wild horses could be more combative and evasive during future gathers, causing increased gather intensity and costs, increased stress to wild horses and potentially increased injury to wild horses in addition to overall decreased ability to properly manage the wild horse herd through effective gathers. Observations from gathers done in previous years in other locations indicate that horses return to pre-gather behaviors anywhere from 1 day to a week following the disturbance associated with a gather. This does indicate that wild horses do become accustomed to disturbances but anticipated reactions to OHV use is unknown.

E. No Action Alternative

Under the No Action Alternative OHV use would continue in the area but to a lesser extent than if the Proposed Action was implemented. Disturbance to wild horses would be expected to continue at current levels and increase in the future if dispersed OHV use continued to increase. The existing 165 miles of road within the HMA would be used by vehicles and OHVs. However, the wild horse distribution and movement patterns would not be impacted as greatly by an increase of human activity within the HMA. Habitat destruction through user

created/unmanaged trails would continue to occur and would likely increase as the population of Lander County and surrounding areas increases.

The current levels of OHV use are not known to be causing changes in wild horse distribution or use within the HMA at this time. In the past 10 years, only one orphan foal has been located within the HMA by BLM specialists. The cause was not determined to be as a result of OHV use, but physiological defect of the foal that caused it to be abandoned by the herd.

Because no gathers have been conducted within the HMA, and would only be scheduled every three or four years, it would be expected that wild horses within the South Shoshone HMA would exhibit behavior patterns similar to other gathers.

Socioeconomics

The potential exists for Lander county to experience socio-economic effects as a result of the Shoshone OHV development. The primary economic activities that contribute to the economic base for these resource lands are ranching, mining, transportation, agriculture, and recreation.

Lander County is located in north central Nevada and encompasses 5,494 square miles. Over 85 percent of the County is administered by the federal government. Interstate 80 traverses the county in an east-west direction on the northern end, as does Highway 50 on the southern end. State Highway 305, which runs north-south, bisects the center of the county. This highway links the cities of Battle Mountain (County seat) and Austin. The town of Kingston is located in the southern part of Lander County on Highway 376.

The total population of Lander County in 2002 was estimated to be 5,691 an approximately 115 percent increase from 1970 (U.S. Census Bureau 2006a). The estimated population in 2005 was 5,114 (Nevada State Demographer 2006).The population density as of 2000 was relatively low at 1.1 persons per square mile (U.S. Census Bureau 2006b). Approximately 85 percent of residents live in the northern portion of the county and 65 percent of the residents live in urban settings. In recent years Lander County's economy has been dominated by mining. Agriculture also plays an important role in the local economy with the production of high quality alfalfa hay and seed.

The median household income in Lander County in 2003 was $46,024 annually (U.S. Census Bureau 2006b). The majority of job related income is derived from the mining sector (www.detr.state.nv.us/cgi/dataanalysis 2006). Fifty-two percent of farm income was from livestock production while 32 percent was derived from crop sales. Total net income from farming and ranching in Lander County dropped from 3.3 million in 1970 to $1 million in 2000 (U.S. Census Bureau 2006c)..

The unemployment rate for the County was 4.7 percent in 2005, which is 0.6 percent higher than the State of Nevada as a whole (U.S. Census Bureau 2006c). According to the Nevada Department of Employment Training and Rehabilitation, job growth in Lander County has increased in the past three years due to an increase in mining and exploration activities (www.detr.state.nv.us/cgi/dataanalysis 2006).

Environmental Consequences

Effects Common to All Action Alternatives –

For all of the action alternatives it is anticipated that there would be an increase in recreation, primarily focused on the use of off-highway vehicles and related activities. The Nevada 2005 State Recreational Trails Plan found that 18.8% of survey respondents participated in ATV riding and they traveled in groups of 4 people or more. A survey of OHV users performed in the state of Utah found that 40%-57% of respondents recreated on land managed by the Bureau of Land Management and that they traveled, on average, 100 miles or more per trip, one-way, to participate in OHV riding activities and made up to 14 trips per year. This same survey also indicated that on average they used 4.3 gallons of gas per trip in their OHV and that people also visited lodging and eating establishments during their trips (Fisher et al, 2001). Based on the expected use levels as identified earlier in this survey it is estimated that approximately 6,000 people would be using the trail system annually (6 peak use days with 120 people, 45 weekend use days with 75 people, and 101 non-peak days with 20 people). It is expected that due to the distance of the project area from a community with amenities (24 miles to Battle Mountain, Nevada) users would largely be self reliant and come equipped with camping equipment and supplies. The distance from the community and associated recreation patterns combined with the limited number of expected users would result in a minimal impact to the economics of the area at an undeterminable level.

IV. Cumulative Impacts

According to the BLM handbook Guidelines for Accessing and Documenting Cumulative Impacts (1994), the analysis can be focused on those issues and resource values identified during scoping that are of major importance. The issue and resource value of major importance or public concern, which would be analyzed for cumulative impacts to wildlife (including special status species and migratory birds), wetland/riparian zones, wild horses, soils/vegetation, range, Native American religious concerns, and invasive non-native species.

Cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts could result from individually minor, but collectively significant actions, taking place over a period of time (Council on Environmental Quality, Regulations for Implementation of NEPA, 1508.7).

The cumulative effects study area is the Shoshone Range with Interstate 80 as the northern boundary, Highway 305 as the southern, the Reese River Valley as the western boundary and Carico Lake Valley as the eastern. The cumulative effects study area for socioeconomics is Lander County. A discussion of past, present, and reasonably foreseeable future actions follows:

Past Actions

This area has been managed for OHVs under the equivalent of an open designation. According to the BLM's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, "open" designations are used "…for intensive ORV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel." Recreation, livestock grazing operations, minerals exploration and extraction have led to the creation of motorized vehicle routes. The growth in population and growth in the use of OHVs for a variety of needs has resulted in the improved motorized access within the planning area.

Livestock grazing, wildlife use, recreation, construction and maintenance of roads, timber harvest, hunting, and mineral exploration have all led to the introduction and spread of noxious and invasive weed species into the project area.

Present Actions

Recreation for a variety of activities within the study area is growing. This can most likely be attributed to the exponential growth of other areas of Nevada and Idaho as well as ads placed by Nevada Commission on Tourism targeting outdoor recreation in rural Nevada. This has led to an increase in impacts on wildlife, socioeconomics, soils, vegetation, riparian areas and other public land users associated with higher levels of recreation use, particularly OHVs. Increased recreation use and mineral exploration has led to increase in road maintenance, loss of riparian-wetlands, and user conflicts with ranching operations including the harassment of livestock, cutting of fences, and gates being left open.

Livestock use still occurs within the area including sheep lambing and grazing and cattle grazing.

Livestock grazing, wildlife use, wild horse use, recreation, maintenance of roads, woodcutting, and recreation all contribute to the spread of weed species throughout the study area.

Reasonably Foreseeable Actions

OHV use and other recreation would continue in the area and levels of use would increase for all types of recreation. This increase of use may result in additional OHV trail construction and designation. Lander County is working towards diversifying the local economy and has targeted outdoor recreation as a means of doing this. Local groups are also working towards developing trail related recreation opportunities for different current and future OHV uses within the study area. Livestock grazing, wildlife use, construction, and maintenance of roads, timber harvest, hunting, and mineral and geothermal exploration uses would continue.

Cumulative Effects of the Proposed Action by Resource Value

Wildlife

Currently, mining, mineral exploration, livestock grazing, hunting and off-highway driving are the uses that in combination with the proposed action would have the greatest impact on wildlife. The livestock grazing management system in place for the Carico Lake Allotment and the attainment of wild horse AML will lead to the improvement of wildlife habitat. The establishment of wildlife guzzlers, vegetation rehabilitation treatments, sage grouse habitat improvement projects, reclamation of abandoned mine lands, riparian exclosures and invasive weed treatment would be beneficial to wildlife habitat within the assessment area. The proposed action would likely have an impact on wildlife by increasing the number of recreational users of the area during the summer/fall use season. The majority of the expected OHV use would occur on high-use weekend days during the summer. The proposed action mitigates cumulative impacts to wildlife by avoiding riparian areas and other sensitive wildlife habitat, discouraging use during winter and spring which are key seasons for population health and when impacts to wildlife species would be the greatest, encouraging visitors to use established trails and providing information to visitors regarding the sensitivity of wildlife and wildlife habitat. Impacts to migratory bird nesting will be mitigated by discouraging use of migratory bird habitat from April through June and requiring migratory bird nesting inventories for any construction activities that were to occur before July 15th.

Wetlands/Riparian Zones

Currently, mining, mineral exploration, livestock grazing, wild horse management, hunting and off-highway driving are the uses that in combination with the proposed action would have the greatest impact on riparian areas. The livestock grazing management system in place for the Carico Lake Allotment and the attainment of wild horse AML will lead to the improvement of riparian areas. Some reasonable foreseeable future actions such as the development of riparian exclosures, invasive weed treatments, fencing, wildfire rehabilitation and vegetation rehabilitation treatments will improve riparian areas. The proposed action could lead to increased impacts of riparian areas due to the expected increase in recreational use of the assessment area. However, various mitigation measures are included as part of the proposed action which would reduce impacts to riparian areas. These measures include encouraging use of an established trail system which would be designed to avoid riparian areas, increased monitoring of riparian areas, reclamation of recreational OHV user created routes in riparian areas and the implementation of responsible-use educational programs.

Wild Horses

The South Shoshone HMA is currently scheduled to be gathered in summer 2007. The EA and Gather Plan was sent to the interested public for comment on April 17, 2007. This gather would involve capture of the population of 336 animals and removal of 276 wild horses to achieve the low end of AML, or 60 wild horses. The planned wild horse gather and OHV Management Plan are currently the most influential activities expected to impact the future health of the wild horse herd, followed by mining and mineral exploration, and other ongoing activities identified above.

Other future activities which could cumulatively impact the future health and free roaming behavior of the South Shoshone HMA wild horse herd include vegetation improvement projects, fire suppression and rehabilitation activities, spring exclosures and water development projects, and noxious weed treatment. Drift fences could be proposed in the future which would be constructed along the ridgeline to prevent cattle drift.

Two primary impacts were considered that could occur from increased OHV use within the HMA resulting from the Proposed Action, Alternatives B and D. These include increased fragmentation of wild horse habitat, and cumulative increases in vegetation and soil disturbances, which result in incremental losses in availability of quality habitat used for wild horses.

Cumulatively, livestock grazing, road maintenance, exploration activities for oil, gas, and minerals, and the proposed OHV Management would impact the quality and quantity of habitat available to wild horses through disturbance or destruction of perennial native vegetation, as well as increase risks for erosion and noxious weed invasion. Alternative D would result in the largest amount of long-term disturbance to soils and vegetation followed by Alternative B and the Proposed Action. The No Action is expected to have minimal cumulative impacts to wild horses within the HMA. Livestock grazing management decisions in recent years in addition to implementation of the established AML, vegetation improvement projects, water developments and noxious weed treatment activities are expected to result in net improvements in wild horse habitat, which would slightly offset disturbances that may occur. Under the No Action alternative, the largest cumulative improvements to wild horse habitat are expected.

Mining activity, oil and gas production, geothermal development, gravel pit expansion, road building, fencing, wild horse gathers, OHV use, fire suppression and rehabilitation, wind generation, are all activities, which can impact wild horse distribution and seasonal movement throughout and between HMAs. Each activity results in incremental restrictions to free roaming behavior and over time may influence utilization patterns, genetic interchange and use of water sources. The Proposed OHV Management under the Proposed Action, Alternative B and D would result in increases to habitat fragmentation. The development of new connector trails along with the development of trail systems throughout the South Shoshone HMA would likely cause long term shifts, and concentrations in distribution within this herd. Herd fragmentation and restriction of movement would be increased by fencing which could occur in the future. The No Action alternative would result in some incremental increases in fragmentation through natural increases in OHV use in addition to other foreseeable activities. The Action Alternatives would contribute to fragmentation substantially more with Alternative D resulting in the highest degree of habitat fragmentation followed by Alternatives B and A. The proposed action when combined with mitigation measures as outline such as avoiding water sources and riparian areas, discouraging use during winter and spring which are key seasons for population health and when impacts to wild horses would be the greatest, monitoring, and encouraging visitors to use established trails would not significantly contribute to the cumulative impacts to wild horses within the study area.

Soils/vegetation

Currently, mining, mineral exploration, livestock grazing, wild horse management, hunting and off-highway driving are the uses that in combination with the proposed action would have the greatest impact on soils and vegetation. The livestock grazing management system in place for the Carico Lake Allotment and the attainment of wild horse AML will lead to the improvement of soils and vegetation. Some reasonable foreseeable future actions such as the development of riparian exclosures, invasive weed treatments, fencing, wildfire rehabilitation and vegetation rehabilitation treatments will improve soils and vegetation. The proposed action could lead to increased impacts of soils and vegetation due to the expected increase in recreational use of the assessment area. However, various mitigation measures are included as part of the proposed action which would reduce these impacts. These measures include encouraging use of an established trail system which would be designed to be sustainable and self-draining, reseeding all areas disturbed by new connector trail construction with an approved native seed mix, reclamation of recreational OHV user created routes and the implementation of responsible-use educational programs. The proposed action when combined with the implementation of mitigation measures outlined, would not significantly contribute to the cumulative impacts to soils and vegetation for the study area.

Range

Currently, mining, mineral exploration, wild horse management, hunting and off-highway driving are the uses that in combination with the proposed action would have the greatest impact on permitted grazing operations. The livestock grazing management system in place for the Carico Lake Allotment and the attainment of wild horse AML will lead to the improvement of conditions for permitted grazing operations. Some reasonable foreseeable future actions such as the development of riparian exclosures, invasive weed treatments, fencing, wildfire rehabilitation and vegetation rehabilitation treatments will improve soils and vegetation and therefore conditions for permitted grazing operations.

Mining activity, oil and gas production, geothermal development, gravel pit expansion, road building, fencing, wild horse gathers, OHV use, fire suppression and rehabilitation, wind generation, are all activities which can impact livestock distribution and movement throughout grazing areas. Each activity may influence utilization patterns and use of water sources. The Proposed OHV Management under the Proposed Action, Alternative B and D would result in long term increases in the amount of OHV use in some of the areas currently utilized by livestock. The development of new connector trails along with the development of trail systems in portions of the Carico Lake Allotment would likely cause shifts, and concentrations in distribution of grazing use in areas adjacent to proposed trail and related facility developments. The No Action alternative would result in some incremental changes in livestock distribution through natural increases in OHV use in addition to other foreseeable activities. The Action Alternatives would contribute to changes in livestock distribution more with Alternative D resulting in the highest degree of change followed by Alternatives B and A. However, various mitigation measures would reduce these impacts. Mitigation measures include avoiding riparian areas and other sensitive grazing use areas, discouraging use during winter and spring which are key for grazing operations, encouraging visitors to use established trails, and the installation of

OHV compatible cattleguards at locations where trails intersect fences. The proposed action when combined with the implementation of mitigation measures outlined, would not significantly contribute to the cumulative impacts to range resources for the study area.

Native American Religious Concerns

BLM and the tribes have witnessed a recent increase in the use of lands, administered by BLM, by various groups, organizations, and individuals. New ways to utilize the land are also on the rise. Grazing; pursuit of recreation opportunities; hunting/fishing; Oil, Gas, Geothermal, and mining leasing, exploration and development; along with relatively "newer" uses such as OHV, interpretive, and "mountain biking" trails, are among many activities that are on the rise within the BLM Battle Mountain Field Office Administration Boundary. In addition to all the existing, growing, and developing uses of the public lands, OHV use may contribute to the general decline in sites and associated activities of a cultural, traditional, and spiritual nature (depending on location of proposed activities and time of use).

It is believed that cultural resources, including tribal resources and sites of cultural, traditional, spiritual use and associated activities are increasingly in danger of losing their physical and spiritual integrity. As populations grow, public interest in utilizing lands administered by the BLM (which operates under a "multiple use mandate") increases and thus the potential for the decline of culturally sensitive areas also increases. Different world views, methods of resource utilization, and social and spiritual practices and beliefs often conflict with each other. Because the traditional lands of the Western Shoshone encompass the majority of the State of Nevada, including the Battle Mountain BLM Field Office administrative boundary, it is imperative that BLM and affected Tribes remain flexible and open to productive and proactive communication in order to assist each other in making decisions that may significantly reduce or eliminate any adverse affects to all party's' interests, resources, and/or activities.

Tribal access to the area would be maintained (or increased) and use throughout the area would continue. However, as stated above, development throughout the planned project phases may increase the level and type of impacts in the area and therefore, should be presented to the affected tribal entities for further analysis as the project specifically develops. Tribal entities should be able to tour and comment on phase one, two, and three of the Shoshone Range OHV Trail system. The proposed action in combination with outlined mitigation measures including avoiding riparian areas and other sensitive sites, inventorying for cultural resources and avoiding sites through trail design, encouraging visitors to use established trails and monitoring for levels of use and compliance would not significantly contribute to cumulative impacts to Native American religious concerns within the study area.

Invasive non-native species

Currently, mining, mineral exploration, livestock grazing, hunting and off-highway driving are the uses that in combination with the proposed action have the greatest potential for contributing to the spread of invasive non-native species. The livestock grazing management system in place for the Carico Lake Allotment and the attainment of wild horse AML will lead to the improvement of invasive non-native species resources. Some reasonable foreseeable future

actions such as the development of riparian exclosures, invasive weed treatments, fencing, wildfire rehabilitation and vegetation rehabilitation treatments will improve invasive non-native species resources.

The proposed action and the action alternatives could lead to increases in invasive non-native species in the area due to the expected increase in recreational use of the assessment area. This increase in recreational use increases the possibility for the spread of existing infestations and the introduction of new species from outside of the area. However, various mitigation measures are included as part of the proposed action and the action alternatives which would reduce these impacts. These measures include following established best management practices for invasive species management including pre-use and construction monitoring and treatment, post-construction seeding, and monitoring following construction and use. Invasive plant, noxious weed and pest awareness and prevention education techniques would also be utilized to increase the awareness of OHV trail users. Alternative D would result in a higher degree of change to invasive non-native species than Alternative A and B due to the higher level of soil disturbance. The No Action alternative could also lead to an increase in invasive non-native plant species in the area due to the expected natural increase in dispersed recreation activity within the assessment area, including OHV use. The proposed action in combination with mitigation measures would result in minimal cumulative impacts to invasive non-native species. Mitigation measures include avoiding known infestations, monitoring for new infestations, seeding newly constructed trails with native seeds, and encouraging visitors to use established trails and providing information to visitors regarding the sensitivity of wildlife and wildlife habitat.

Socioeconomics

Present and historic activities within the area of study for socioeconomics (ranching, mining exploration, development, and reclamation, realty actions, recreation, and off-highway vehicle use, fire suppression and rehabilitation) have contributed to the development of the existing rural resource based communities in northern Nevada. Most socioeconomic impacts consisted of the generation of economic activity during agricultural development, mining, and associated commercial activities. The Proposed Action represents a continuation of the types of activities that are currently and have historically affected the socioeconomics of the area. It is reasonable to assume that these activities would continue with the study area.

Specific information regarding the socioeconomic impacts of the Proposed Action is not available but it is anticipated to be minimal based on the distance of the project area from communities and the anticipated number of users annually. The proposed action does not induce substantial growth or concentration of population, displace a large number of people, cause a substantial reduction in employment, reduce wage and salary earnings, cause a substantial next increase in county expenditures, or create a substantial demand for public service. It is expected that cumulate and incremental socioeconomic effects of the Proposed Action would be beneficial and not significant.

V. Proposed Mitigation and Monitoring

As previously outlined mitigation and monitoring measures incorporated into the proposed action are sufficient, based on the analysis of environmental consequences no additional mitigation is proposed.

VI. Consultation, Coordination, and List of Preparers

A. Consultation and Coordination

An initial scoping letter was sent on April 20, 2006 to affected stakeholders who have expressed an interested in any activities which may impact public lands and/or public land users.
The following groups and agencies were consulted and/or coordinated with during the development of this project:

- Ellison Ranching Co.
- Lander County Commissioners
- Northern Nevada ATV Association
- Nevada Department of Wildlife
- Commission for the Preservation of Wild Horses
- Wild Horse Organized Assistance

B. List of Preparers

The following persons participated directly in the preparation of this document:

- Rob Perrin, Recreation, Wilderness, Project Manager, Author
- Kalem Lenard, Project Coordinator, Co-Author
- Michele McDaniel, Rangeland Management Specialist
- Mike Stamm, Wildlife Biologist
- Janice George, Archaeologist
- Gerald Dixon, Native American Coordinator
- Joe Ratliff, Forester, Noxious Weed Management
- Chuck Lane, Realty Specialist
- Stephen Drummond, Supervisory Mining Engineer
- Shawna Richardson, Wild Horse and Burro Specialist
- Duane Crimmins, Supervisory Wildlife Biologist
- Christopher Worthington, Environmental Coordinator

VII. Public Involvement

Public involvement in this planning process dates back to August 2003 when Lander County, the Northern Nevada ATV Association (NNATVA) and the BLM – Battle Mountain Field Office established a cooperative agreement with the purpose of developing managed OHV opportunities in Lander County. Under this cooperative agreement a proposal to create an OHV management program in the Shoshone Range was developed in January 2004.

A meeting was held between a grazing permittee at the time, the Filippini Ranching Company, of the affected Carico Lake Allotment, Lander County, the NNATVA and the BLM – Battle Mountain recreation planner in April, 2004 to discuss concerns regarding OHV management in active livestock grazing allotments.

A consultation process began with the Nevada Department of Wildlife (NDOW) in January 2005 regarding potential wildlife and wildlife habitat concerns in the area being considered for OHV management in the Shoshone Range. Four meetings were held through May 2007. Draft documents were provided to NDOW in order to solicit additional comments.

A public scoping meeting was held at the Battle Mountain Civic Center on July 14, 2005 to assist BLM staff in identifying issues and developing alternatives for this project. Notice of the meeting was posted in the Battle Mountain Bugle in the July 13-19, 2005 edition. The meeting was also advertised on the Civic Center lighted event billboard. Comment forms were handed out at the meeting. A follow up newspaper article in the Battle Mountain Bugle in the July 20-26 edition discussed the OHV management project alternatives being considered at the time. It also solicited comments from the public to be submitted to the BLM – Battle Mountain Field Office recreation planner.

A public comment meeting for the Environmental Assessment (EA) will be held on July 18th, 2007 at the Battle Mountain Field Office in Battle Mountain, Nevada. Any relevant comments received at this meeting would be incorporated into the revised EA.

Three consultation meetings were held with a new grazing permittee, Ellison Ranching Co., of the affected Carico Lake Allotment. Managers and resource specialists of the BLM – Battle Mountain Field Office and representatives of the NNATVA held meetings from August, 2005 to January 2006 to discuss potential OHV management project impacts to the livestock grazing operations.

A scoping letter was sent on April 20, 2006 to an established list of interested parties associated with the Carico Lake Allotment. The letter described the potential project being considered and solicited comments.

The project was presented to Nevada Department of Conservation and Natural Resources board on May 14th, 2007. The presentation occurred at their regularly scheduled board meeting in Carson City.

A consultation meeting was held with the Commission for the Preservation of Wild Horse and Wild Horse Organized Assistance (WHOA) on May 14th, 2007 regarding potential wild horse concerns in the area being considered for OHV management in the Shoshone Range and within the South Shoshone Herd Management Area.

All correspondence relative to this planning process is part of the public record and available for review at the Battle Mountain Field Office.

Information gathered as a result of the above mentioned contacts and correspondence was utilized by BLM recreation staff to identify issues and formulate alternatives.

Glossary
Note: The following terminology is for use with this document.

Access: The physical ability to have legal ingress to and egress from public lands via public roads or on routes having public easements.

Adaptive Management: A process for continually improving management policies and practices by learning form outcomes of operation programs and new scientific information.

Archeology: The reconstruction of past cultures through their material remains and the study of how cultures change over time.

Connectivity: A network of habitat patches linked by areas or corridors of like habitat; it affects how organisms can move through the landscape.

Cultural Resources: The physical remains of human activity (such as artifacts, ruins, burial mounds, petroglyphs) having scientific, prehistoric, or social values.

Designation: The approval of a resource management plan, plan revision, or plan amendment constitutes formal designation of off-highway vehicle use areas.

Designated Roads and Trails: Specific roads and trails identified by the agencies where some type of motorized vehicle use is appropriate and allowed either seasonally or year long.

Erosion: Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. Accelerated erosion is much more rapid than normal, natural, or geologic erosion, and results primarily from the influence of activities of people, animals, or natural catastrophes.

Fragmentation: Process of reducing the size and connectivity of vegetated stands and/or habitat that comprise a rangeland or forest; a measure of connectivity in vegetative and/or habitat conditions across a landscape.

Guidelines: Management tools, methods, and techniques designed to provide activities, experiences, and benefits for the public while maintaining or achieving healthy public lands as defined by the standards. The guidelines contained in this document are directed toward maintaining or achieving public land health.

Habitat: The sum total of environmental conditions of a specific place occupied by a wildlife species.

Indicator: Quantitative measure of an ecosystem element which is used to describe the condition of an ecosystem; changes in indicators over relatively short periods of time are used to measure affects of management.

Land Use Plan: A resource management plan, developed under the provisions of 43 CFR part 1600, or a management framework plan. These plans are developed through public participation

in accordance with the provisions of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq) and establish management direction for resource uses of public lands. A set of decisions establish management direction for land within an administrative area, as prescribed under planning provisions of FLPMA, an assimilation of land use plan level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed.

Limits of Acceptable Change (LAC): A planning and management framework that requires managers to define desired physical and social conditions and to undertake actions to maintain or achieve these conditions. The focus is shifted from "how much use is too much" to "what are the desired environmental and social conditions desired in an area." The process is used to determine what physical and social indicators and standards could be used to monitor the change taking place in various recreational settings. It is also used to identify specific management actions targeted at preventing unacceptable social and resource impacts from occurring.

Mechanized Vehicle: Any non-motorized vehicle capable of, or designed for, travel on land. An example of a mechanized vehicle is a mountain bike.

Monitoring: An ongoing process of collecting information to evaluate if objectives and anticipated or assumed results of a management plan are being realized, or if implementation is proceeding as planned.

Natural Resources: These include topography (consider slope and drainage patterns), soil, water courses and/or water bodies, geological formations, vegetation (consider rare, threatened, or endangered species), and fish and wildlife (consider rare, threatened, or endangered species).

Off-Highway Vehicle (Off-Road Vehicle): Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies.

Off-Road Designations:

1. Open area means an area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in subpart 8341 and 8342.

2. Limited area means an area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories; number of vehicles, types of vehicles, time of season of vehicles use, permitted or licensed use only, use on existing roads and trails, use on designated roads and trails, and other restrictions.

3. Closed area means an area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only

with the approval of the authorized officer.

Paleontology: The study of fossils; what fossils tell use about the ecologies of the past, about evolution, and about out place, as humans, in the world. Informs us about interrelationship between the biological and geological components of ecosystems over time.

Permit: Authorization in writing by the authorized officer or other person authorized by the United States Government, and is a contract between the permittee and the United States.

Properly Functioning Condition (Riparian): Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize stream banks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation.

Properly Functioning Condition (Uplands): Uplands are functioning properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by land form, soil, water, and vegetation.

Public lands: All lands under the custody and control of the Secretary of the Interior and the Secretary of Agriculture, except Indian lands

Resource Advisory Council (RAC): A citizen-based group of 10 to 15 members chartered under the Federal Advisory Committee Act and appointed by the Secretary of the Interior to forward advice on public land planning and management issues to the BLM. Council membership reflects a balance of various interests concerned with the management of the public lands and users of the public lands.

Resource Management Plan (RMP): A BLM multiple use planning document, prepared in accordance with Section 202 of the Federal Land Policy and Management Act, that

1. establishes resource conditions goals and objectives to be attained
2. allocates resources and identifies allowable uses
3. identifies land area for limited, restrictive, or exclusive uses, and
4. provides guidance for implementation of the decisions made in the plan.

Riparian Area: An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and stream banks are typical areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent on free water in the soil.

Road: Travel route that has been improved and maintained by mechanical means to ensure relatively regular and continuous use.

Soil Functionality: The maintaining of soil structure and texture characteristics, such as aeration, temperature, moisture, nutrition and the organisms that live in the soil.

Special Recreation Permit: Authorizations which allow for recreational uses of the public lands and related waters. They are issued as a means to control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and as a mechanism to accommodate commercial recreational use of public lands.

Standard: A description of conditions needed to sustain public land health.

Sustainability: The ability to maintain diversity, productivity, resilience to stress, health, renewability, and yields of desired values, resource uses, products, or services over time in an ecosystem while maintaining its integrity.

Trail: A linear travel corridor for use by many types of activities. In areas other than wilderness study areas, any kind of trail (usually single-tracked) found during an inventory. Jeep trails are extremely rough 2-track roads.

Trend: The direction of change over time, either toward or away from desired management objectives.

Uplands: Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

Urban Interface: An area where urban encroachment into adjacent wildland areas is increasing the complexity and magnitude of problems related to all aspects of natural resource management and protection, including increase fire risks, unauthorized use, and littering.

Watershed: The land that drains into a stream. An area of land that contributes runoff to one specific delivery point; large watershed may be composed of several smaller “sub sheds,” each of which contributes runoff to different locations that ultimately combine at a common delivery point.

APPENDIX A - Maps - see attached

List of Maps:

Shoshone Range OHV Management – Alternative A, Proposed Action and Alternative B
Shoshone Range OHV Management – Alternative C
Shoshone Range OHV Management – Alternative D
Carico Lake Use Areas Affected by Proposed Action and Alternatives

These maps are intended to provide representational information only. Detailed maps are available for public review at the Bureau of Land Management, Battle Mountain Field Office.

APPENDIX B – Resource Advisory Councils OHV Guidelines

OHV ADMINSTRATION GUIDELINES FOR NEVADA PUBLIC LANDS

PREAMBLE

The Nevada Northeastern Great Basin Resource Advisory Council (RAC), the Sierra Front Northwestern Great Basin RAC and the Mojave-Southern Great Basin RAC, as chartered by the Department of the Interior, have developed Guidelines for the administration of Off-Highway Vehicle (OHV) use on public lands within the State of Nevada. These guidelines are intended to promote cooperation among user groups, to share resources, and to minimize conflicts in accordance with the Nevada Standards for Rangeland Health. While recognizing the legitimacy and necessity of OHV use on public lands, it has become necessary to define guidelines for management of OHVs to insure the protection of land health and the availability of the public lands for all multiple users. These guidelines are to assist land managers in administrative and planning decisions. Administrators can use the guidelines for managing for land health and making decisions with regard to restricting or not restricting OHV activity. Additionally, administrators can use the educational guidelines as tools to provide training for land managers and to inform the public on OHV use issues and ethics. Planners should use these guidelines in developing timely plans for resources and recreation use, while addressing the increasing demand for OHV use.

ON-THE-GROUND MANAGEMENT GUIDELINES

- Encourage OHV use on existing or designated roads and trails, except in closed areas, prior to land use plans being updated and road and trail inventories completed.

- Locate and manage OHV use to conserve soil functionality, vegetative cover, and watershed health. Manage OHV use to minimize the impact on the land, while maintaining OHV access.

- Manage OHV use by type, season, intensity, distribution, and/or duration to minimize the impact on plant and animal habitats. If seasonal closures become appropriate to minimize adverse OHV impact(s) on public lands resources, managers will strive to preserve public access by designating alternative routes.

- Manage OHV activities to conserve watershed and water quality.

- Monitor the impact(s) of OHV activities on all public land, water, air and other resources and uses.

- Maintain an inventory of existing road and trail systems.

- Manage OHV use to preserve cultural, historical, archeological, and paleontological

resources.

- Engineer, locate, and relocate roads and trails to accommodate OHV activities while minimizing resource impacts.

- Encourage cooperation in law enforcement among all agencies.

- OHV use pursuant to a permitted activity shall be governed by the terms of the permit.

PLANNING GUIDELINES

- In land use plans or plan amendments, designate areas as open, limited, or closed to OHV use.

- Address OHV management including land use and/or route designations, monitoring and adaptive management strategies, such as applying the Limits of Acceptable Change process, when developing new land use plans or amending existing land use plans. Work closely with local, state, tribal, and other affected parties and other resource users in OHV planning.

- Establish and maintain an inventory of existing routes and trails as part of the land use planning process.

- Provide for other resources and uses in OHV planning. This includes livestock grazing, other recreational uses, archeological sites, wildlife, horses and burros, and mineral extractions and coordinate with other users of public lands.

- Conduct an assessment of current and future OHV demand, and plan for and balance the demand for this use with other multiple uses/users when developing all land use plans.

- Include in land use plans, social/economic effects of OHV use, including special recreation events.

- Integrate concepts of habitat connectivity into OHV planning to minimize habitat fragmentation.

- For addressing/resolving local site-specific OHV issues/concerns, use collaborative planning groups consisting of local representative(s), affected/interested group(s) and agency(s).

- Clearly identify route and area designations.

- Where land health permits develop sustainable OHV use areas to meet current and future demands, especially for urban interface.

EDUCATION GUIDELINES

- Cooperatively develop/improve public outreach programs to promote trail etiquette, environmental ethics, and responsible-use stewardship ethic.

- Promote/expand/disseminate materials from programs such as (but not limited to) “Tread Lightly!” and “Leave No Trace”.

- Provide OHV management education and training for managers, staff, partners and volunteers. Training should focus on state of the art practices and be tailored to meet local needs. Encourage communication between agencies, managers, staff, partners and volunteers to share expertise and effective techniques.

- Encourage the private sector, as well as the public sector, to conduct responsible marketing of activities on public lands while avoiding the promotion of products, behaviors and services that are inconsistent with existing regulations and land use plans.

- Develop communication and environmental education plan(s). Assess all situations where OHV use may require public information and education. Develop materials and programs appropriate to each situation.

- Utilize high use areas and special events to maximize the dissemination of responsible use education materials and concepts to the public.

APPENDIX C – Management Plan

Shoshone OHV Management Plan

SECTION 1: Name and Location

1. The name of the trail system will be the Shoshone OHV Trail System

2. The eastern boundary of the project area will be Carico Lake Valley Rd. from Hwy 305 to Carico Lake.

3. The southern boundary will follow Hwy 305 to the west starting at the junction with Carico Lake Valley Rd.

4. The western boundary will be Hwy 305 from the southern part of the Shoshone Range north to Mill Creek Rd.

5. The northern boundary will follow the Mill Creek Road from Hwy 305 to Carico Lake Valley Rd.

6. Refer to Appendix A for Maps showing project boundaries

SECTION 2: Program Management

A. Administration

1. This trail system will be open to all non-motorized uses and off-highway vehicles limited to quads and motorcycles. Full-size vehicles will be allowed on all existing routes utilized as part of the OHV trail system and will be signed as shared-use roads.

2. Opportunities by type of vehicle (full-size, ATV, and motorcycles) will be identified on maps and signs.

3. The trail system will be designed to target and accommodate local and regional use for one-day or short weekend visits. This includes adequate mileage, a variety of loop opportunities, and a variety of trail difficulties.

4. Trails will be rated for difficulty levels which will be indicated on signs and maps. There are three possible difficulty levels: Easiest, More Difficult and Most Difficult. See Section 6 for Trail Difficulty Guidelines.

5. Site-specific and seasonal closures of trails or portions thereof may occur in order to perform maintenance, minimize soil displacement, protect public safety, protect other resources, or other management needs, which may arise.

6. Camping at the trailhead will be allowed and primitive camping throughout the area and on adjacent public lands will be allowed following existing BLM guidelines.

7. Unauthorized recreational OHV user created trails within the planning area will be rehabilitated as part of the maintenance program.

8. A pro-active volunteer program will be implemented. Volunteers will be utilized to help implement, maintain, and monitor the trail system under the guidance of the BLM.

9. An annual trail maintenance plan will be prepared. Trails will be maintained as needed to protect resources and maintain design standards. The difficulty rating of each trail will also be used to determine frequency and level of maintenance. Rehabilitation of user created routes will be included in the maintenance plan.

10. Trail maps will be provided at all trailheads, kiosks, and BLM offices. The maps will provide information on regulations, signing, ethics, safety, and other material deemed appropriate.

11. Following 43 CFR 8343.1 (c) spark arrestors may be required on all off-road vehicles within the project area.

12. BLM recreation staff will provide input to interdisciplinary teams planning other activities in the area in order to coordinate activities with the trail system and recreation use.

13. Use fees may be implemented in order to assist in the funding of ongoing management of the trail system.

B. Education and Law Enforcement

1. The education and enforcement program will be based on the Four E Concept: Engineering, Education, Enforcement, and Evaluation. See Section 7 for the Education and Law Enforcement Plan.

    - Engineering means limiting opportunities for either inadvertently or deliberately violating rules or regulations through proper trail design, facility design, effective signing, barriers and fencing or other engineering structures or methods.
    - Education deals with the prevention of violations through visibility, information, maps and other brochures, patrols, and a variety of communication media.
    - Enforcement emphasizes public education and gaining compliance but citations may be issued when conditions warrant. Officer's discretion is important to achieve public support and protection of resources.
    - Evaluation means that the trail system will continually be monitored for the effectiveness of the education and enforcement program and be proactive in making necessary adjustments. Monitoring will also occur for maintenance needs, level of use, and impacts to resources.

2. Trail maps will be developed and will be provided at the trailhead and other access points as necessary. The maps will also be widely distributed locally to clubs, OHV dealers, chamber of commerce, or any other appropriate outlet including popular local OHV riding areas.

3. Information about the trail system will be included on the BLM website.

4. A "know before you go" hotline phone number will be established that provides information regarding trail conditions, closures, or other pertinent information.

5. Key features of the enforcement and education program will be resource protection, sensitive resources, multiple uses on public land, and tread lightly principles. See Appendix B for Tread Lightly! OHV Recreation Tips.

6. If education, enforcement, and maintenance does not adequately protect sensitive resources or features and further mitigation would not be effective, a trail could be rerouted or closed.

7. The BLM will actively work with the county in regards to agreements for law enforcement, emergency services, equipment, training, rescue plans, and funding sources for these.

8. A pro-active volunteer program will be implemented. Volunteers will be utilized to help implement, maintain, and monitor the trail system under the guidance of the BLM.

C. Maintenance

1. An annual maintenance plan will be prepared based on seasonal maintenance needs and priorities.

2. Trails will be maintained as needed to protect resources, maintain design standards, and insure public safety. BLM recreation staff will ensure that appropriate maintenance is performed in a timely and effective manner.

3. The difficulty level and Trail Management Objectives will be used to determine the frequency and level of maintenance. Please see Section 5: Trail Management Objectives and Maintenance Guidelines for more information about maintenance.

D. Monitoring

1. The purpose of monitoring in association with this trail system is to monitor for change and provide that information to land managers to allow them to make decisions about management strategies based on the relationship of desired conditions to current conditions.

2. In order for a monitoring plan to be effective it must contain the following key components:
    - Be a developed system so that it may be followed in the future,
    - Valid, reliable, and repeatable data collection,
    - Feasible and cost effective to implement,
    - Able to record changes over time, and
    - Provide information for managerial decisions.

3. The plan will include the collection of baseline data prior to opening the trail system for use. Areas to be considered in the plan could be, but are not limited to:
    - Visitor use data and trends
    - Social/user conflicts
    - Existing and new noxious weed populations
    - Effectiveness of cultural resource protection measures
    - Compliance with rules and regulations
    - Wildlife utilization and success
    - Indicator species
    - Migratory Birds
    - Wild Horses
    - Sagegrouse
    - Dispersed campsite use and associated impacts

4. If monitoring reveals the need to close or relocate a trail or portion of a trail, an equivalent trail may be relocated within the project area subject to appropriate levels of NEPA analysis.

5. Monitoring and analysis will occur between development phases in order to determine level of success of previous phases, adaptive management strategies to take, and if additional phases are needed.

6. If monitoring indicates that a decline in user experience or unacceptable resource impacts are occurring due to increased use of the trail system, the BLM will assess the need to implement a system designed to control and/or limit the number of riders, implement additional phases, enlarge the trail system, or assess the need for additional trail systems elsewhere.

E. Special Use Permits

1. Competitive motorized events will not be permitted within the trail system. Motorized events will not be speed events or head-to-head competition events. Non-motorized events, competitive and non-competitive will be permitted.

2. Both before and after an authorized event, the BLM and permittee will review the route and the terms of the permit.

3. Trails used for events will be returned to their pre-event level of maintenance and route markers will be removed prior to the termination of the permit. Some level of trail grooming will be required as part of route rehab. Performance bonds may be required in order to insure satisfactory compliance with the terms of the permit.

4. During periods of poor soil conditions or other resource concerns, permits may be denied or postponed until resource conditions are adequate to minimize impacts.

5. Under a permit, some or all of the trails and roads may be closed to public use and some recreation uses may be restricted.

SECTION 3: Engineering

A. Trail Design

1. New trails will be 50" or less in width and will accommodate motorcycles and quads.

2. All trails will be two-way. Learner loops, kiddie loops, or other specialized trails may be one-way.

3. Generally, turnouts will not be constructed.

4. In locations where trails cross roads, trail crossings will be designed to cross at a 90-degree angle and provide maximum sight distance. Trail alignment will be designed to slow the riders and reduce visual impacts.

5. OHV cattleguards with by-pass gates will be installed at all fence crossings. Fence crossings on shared use roads that see higher levels of use will have full-size cattleguards installed.

6. Any user-created trails that are not part of the designated trail system will be closed and rehabilitated.

7. Soils exhibiting the potential for unacceptable levels of displacement or dust levels could be hardened or stabilized with gravel, concrete blocks, or other means.

8. Trails will be designed following guidelines established by the United States Forest Service, the International Mountain Biking Association, or the American Motorcycle Association. They will be designed to be flowing and to create a high fun factor for OHV users following the guidelines in section 6

9. New trail construction will be designed to avoid sensitive areas including riparian areas, and private land.

10. Vegetation removal will be to the minimum extent possible and managed for safety including sight distances.

11. Existing roads that are currently impacting resources at unacceptable levels could be re-routed or improved to reduce impacts as determined by monitoring. Re-routes occurring on shared-use roads will be constructed to accommodate full-size vehicles.

12. Signing would be implemented that would be follow the NOHVOPS Sign Plan. Other BLM OHV trail systems would follow this sign plan in order to maintain consistency for ease of use. Please see Section 8 Sign Plan.

13. Trails will be designed to reduce user speeds. Turnouts will be constructed where topography or vegetation limit/prohibit two-way passing opportunities. Turnouts will not be intervisible.

B. Facility Design

1. Informational kiosks will be located at trailheads and other appropriate locations. These structures will offer information on interpretive opportunities, general area regulations, maps, noxious weed control, wildlife, range, and other issues. Whenever possible, native materials will be employed to blend with the setting.

2. Trailheads will be of a primitive design with few facilities. Restrooms may be installed as deemed necessary. Trailheads will be designed to accommodate larger vehicles towing trailers.

3. Practice loops will be provided adjacent to the trailheads that will be fenced where needed. This will provide beginners and young riders a place to practice their skills before heading out on the trail in an acceptable area.

4. Barriers will be installed as necessary to direct and control use.

5. Roads traveling to the trailheads will be improved to accommodate larger vehicles and more frequent vehicle use.

C. Roads and Engineering

1. If existing roads are converted to trails, narrowing and the use of natural features will be incorporated into the trail design in order to increase trail diversity, reduce vehicle speeds, and minimize visual resource impacts.

2. Rights-of-ways within the project area will not be hindered.

3. Existing roads that are utilized as part of the designated trail system will be signed as Shared Use Roads.

4. Trail closures will be conducted utilizing one or several mechanisms such as signing, gating, berms, obliterating or camouflaging. Each closure will be evaluated individually to insure the most appropriate methods are employed.

5. Existing roads that travel through riparian areas and are negatively impacting resources could be re-routed. Re-routes would be designed and constructed to accommodate full-size vehicles if appropriate.

D. Private Land

There are several in-holdings of privately owned land within the project area. No new trail construction will cross private land unless a right-of-way or reservation is in place.

E. Signing

Adequate and well thought out signing will be provided at all trailheads and throughout the trail system following the sign plan found in Section 8.

SECTION 4: Implementation

A. Construction Practices

- If prehistoric or historic artifacts are found during the course of construction, work will be stopped immediately and the COR and resource specialists will be contacted.
- Construction would not take place between May 1st and July 15th unless a survey of the project area is done prior to determine no migratory bird breeding or nesting is occurring in the area.

SECTION 5: Trail Management Objectives and Maintenance Guidelines

The purpose of trail maintenance is threefold: protect user safety; maintain the trail in a condition where the width, depth, drainage, and control of the riders are adequate to protect adjacent resources; and keep the trail within the parameters of the designed trail management objectives.

Maintenance needs are dynamic as they are constantly changing and growing. This plan outlines the work anticipated to meet the above objectives, but at no time will a large trail system be in a condition of being 100% maintained. As long as the trails are open to use, the trail treads will be constantly deteriorating at a variety of rates. Some trail treads will be in very good condition, some will be okay, and some will be in poor condition. Those in poor condition will be identified and placed on the maintenance plan for the next year unless there is a safety or resource concern that dictates immediate attention.

Trail Management Objectives:

A. General

1. The user will be provided a variety of quality trail experiences that produce a high fun factor. This can be accomplished by providing a mix of tight trails and open trails that provide a variety of settings, speeds, and challenges.

2. A trail experience will be provided, not a highway experience. This will be accomplished through tighter alignment, narrower clearing, leaving more obstacles in the trail, and other methods that produce slower speeds.

3. The users will feel like they are blazing their own trail without ever getting off the designated route. This can be accomplished through tight alignment, tight clearing, less pruning, and more obstacles left in the trail. Likewise a natural experience in a desert setting would be provided. The alignment will be straighter, but all available trees and brush would be taken advantage of to make the trail as curvilinear as possible.

4. Trails will be designed and located, to the extent possible, in a manner that maximizes the views of the region's outstanding natural features and take advantage of changes in settings, vegetation, soils, and topography.

5. Trails will be constructed and maintained, to the extent possible, to lie lightly on the land. They will blend with the topography by curving and flowing with the natural contour. They will be self-draining with rolling grades. Where grades cannot be rolled, erosion-controlling structures will be installed. Removal of vegetation, rocks, and other features will be kept to a minimum.

6. Safe riding practices will be promoted, and to the extent possible, safe riding opportunities will be provided. It is recognized that accidents and personal injury are inherent risks and there is often a fine line between a hazard and an obstacle or experience that requires challenge or technical skill. Generally, a natural feature will not be considered a hazard as long as the skill required does not exceed the difficulty level of the trail. Any man-made feature that creates an obvious potential hazard will be removed or mitigated.

7. Range management will be facilitated by using cattleguards in place of gates. For safety, trails will be designed to cross cattleguards on a tangent. By-pass gates at or near cattleguards will allow equipment to pass and facilitate trail use by equestrians.

B. Trail Treads

1. Trail construction shall follow the established trail management objectives for that trail.

2. Trail treads will be constructed 50" or less depending upon difficulty level. Narrow treads and narrow clearing reduces speed and increases the trail experience. Reducing speeds increases safety, reduces trail maintenance because moguls develop slower, and increases the amount of time users are on the trail.

3. All trails will be two-way use except where undesired. This helps to reduce speeds by forcing the trail user to be defensive; other users should be anticipated around every turn. This also helps to create a trail experience rather than a racetrack experience.

4. Turnouts generally will not be constructed unless trails are on steep, full bench slopes where there is no other opportunity for two-users to pass. This will help to reduce speeds and create a trail experience rather than a highway experience.

C. Clearing

1. A narrow clearing width will be maintained in order to further reduce speeds and provide a natural "trail-blazing" experience. Safety will not be compromised. Green limbs and flexible brush that encroach within the clearing limits will generally be left in place in they do not unduly infringe on sight distance or form a safety hazard.

D. Signing

1. Quality signing and mapping will be provided to promote visitor safety and user knowledge of their location. Signing on the ground that matches information on maps and vice-versa would be emphasized.

2. Signing will be kept to a minimum to increase the trail experience and improve esthetics. Reassurance markers will be placed after each junction, at all road crossings, and at any point where there may be confusion as the continuing direction of the trail. Yield and Yield Ahead signs will be used where trails cross high speed or high traffic volume roads. The use of Stop signs will generally be discouraged.

3. Signs will be consistent with other Nevada BLM recreation management signing programs. To the extent possible sign colors, shapes, and messages will be consistent throughout the trail system.

4. Travel management signs will be placed at trailheads and other key areas to inform the public which uses are allowed on particular trails and other regulations.

Trail Maintenance Guidelines

A. General Maintenance

1. Trail maintenance shall follow the established trail management objectives for that trail.

2. All maintenance will be dependent on the availability of funding, personnel, equipment, and appropriate weather to effectively perform the work.

3. A Trail Patrol Program may be setup that would assist with day-to-day maintenance such as pruning of vegetation and the picking up of litter. They will also assist in identifying maintenance needs and reporting this back to the respective agency or entity.

B. Trail Tread Maintenance

1. An annual trail maintenance plan will be prepared which would outline the trails/areas to be worked on and the recommended treatments. All maintenance

performed will be recorded in a maintenance log to facilitate future planning and accounting of the maintenance work performed.

2. Trail condition surveys and monitoring will be performed to identify maintenance needs. Any undue hazards that are identified will be treated as a priority.

3. Trail grooming will be performed on high use trails to slow the growth of moguls. Once moguls have developed to the point that users ride off to the side of the trail, the trail will be scheduled for reconstruction.

4. It is extremely important not to over-maintain the trails. Resources need to be protected, but the intended difficulty level cannot be compromised. These are trails, not roads, so they must be challenging and interesting.

5. To improve the flow of the trail and reduce the potential for widening, curves will be super elevated where practical.

6. Since tracks beget tracks, any off-trail tracks will be raked out or obliterated whenever practicable.

7. Since trash begets trash, garbage and litter along roads, trails, and in trailheads will be picked up to maintain a neat, clean, professional appearance.

C. Clearing Maintenance

1. Dead, inflexible limbs will be pruned during regular maintenance. To the extent possible, pruned limbs will be cut flush with the trunk.

2. The hauling out of debris and logs will be performed on the appropriate size vehicle to ensure that adequate width and turning radius is maintained.

3. Debris, logs, and other cut material will be placed strategically to prevent shortcutting the trail or to deter off-trail use.

4. Logs meeting the specified obstacle height may be left in place provided they are solid, do not move or roll, and are nearly perpendicular to the trail.

5. Trees that are leaning over the trail or suspended over the trail may be left in place if they are more than 6 feet above the trail tread and there is adequate sight distance in both directions to see and react to the potential obstacle.

D. Signing Maintenance

1. Any trail signs that are vandalized will be replaced as soon as practicable. Replacing safety and regulatory signs will be a priority.

E. Other Maintenance

1. Cattleguards will be cleaned out as necessary to maintain their effectiveness. Broken wings and deck rails will be replaced as needed to insure rider safety and cattleguard effectiveness.

SECTION 6: Trail Difficulty Guidelines

(These guidelines are to assist in design, construction, maintenance and signing)

	Easiest	More Difficult	Most Difficult
Grade:			
Typical Grade	<20%	<25% Grades shall roll and not be sustained	<30%
Max. Pitch:			
Grade	15% - 25%	20% - 30%	>30%
Length	200'	300'	300'
Clearing:			
Width	60” to 72"	50" to 60"	50" (maximum)
Height	7'	6'	6'
Helmet and Leg Slappers	Few	Many	Common
Tread:			
Width (minimum):			
Sideslope <25%	50"	50"	50"
Sideslope 25%-70%	60" to 72”	60"	50"
Surface:	Some roots or rocks; obstacles rarely exceed 6-8" and are imbedded solidly in tread; obstacles generally on tangents; tread plane relatively flat with 15% max outslope for short sections; sweeping curves and some circular climbing turns; more open alignment with circular longer radius curves; sand acceptable and some sections of slippery clay or loose material.	Many roots or rocks; obstacles rarely exceed 8-10” and may be loose; obstacles on tangents and some on curves; tread plane flat to irregular with 25% max outslope for short sections and longer sections with less outslope; climbing turns and some circular switchbacks; sections of tight alignment with circular short and long radius curves; sand acceptable and long sections of slippery clay or loose material.	Very many roots or rocks; many obstacles exceed 10"; obstacles on tangents and curves; tread plane very rough and irregular with long sections exceeding 25% outslope; non-circular climbing turns and switchbacks; long sections of very tight alignment with non-circular curves; entire trail may be soft sand, slippery clay, loose material or mud.
Exposure:	No Potential Injury	Potential Injury	Potential Injury
Maintenance:	Regularly Maintained	Maintenance Occurs	Maintained Only as Needed to Prevent Resource Impacts

SECTION 7: Education and Enforcement Plan

The intent of the education and enforcement program is to gain compliance from users and educate them regarding responsible OHV use. Most often rules are violated out of ignorance not out of spite or malicious intent and the philosophy of this plan reflects this. Engineering and education will be the primary tools to gain compliance, law enforcement will be secondary.

The education and enforcement program will be based on the Four E Concept: Engineering, Education, Enforcement, and Evaluation. Engineering and education will be the primary means for gaining compliance from users. Enforcement is secondary.

- Engineering means limiting opportunities for either inadvertently or deliberately violating rules or regulations through proper trail design, facility design, effective signing, barriers and fencing or other engineering structures or methods.
- Education deals with the prevention of violations through visibility, information, maps and other brochures, patrols, and a variety of communication media.
- Enforcement emphasizes public education and gaining compliance but citations may be issued when conditions warrant. Officer's discretion is important to achieve public support and protection of resources.
- Evaluation means that the trail system will continually be monitored for the effectiveness of the education and enforcement program and be proactive in making necessary adjustments. Monitoring will also occur for maintenance needs, level of use, and impacts to resources.

A. Engineering

- The engineering component of the Education and Enforcement Plan will be tied directly to the physical monitoring portion of the monitoring plan.
- Monitoring will indicate problem areas and managers will look at why this problem is occurring and if there is an engineering remedy.
- Trail design, facility design, effective signing, barrier and fencing or other structures or methods may be effective in addressing rule or regulation violations.

B. Education

- Education will focus on providing information to users so that they know the rules and regulations of the area and what type of behavior is expected while recreating on public land. The information is intended to not only gain compliance at this recreation area but to influence behaviors while recreating elsewhere. This will be distributed to the public through various forms of media including maps, kiosks, interpretation stations, an 800 hotline number, BLM website, and signing throughout the trail system.

  Media dispersed to the public should contain the following information wherever appropriate.
  - Welcoming remarks and introduction to the trail system
  - Operator responsibilities including Tread Lightly ethics, regulations that apply for the area, and safety precautions.

- Include locations of trails, trailheads, access roads, and status of roads throughout the trail system.
- Signing to be found throughout the trail system (see Section 8 for the Sign Plan).
- Camping rules
- Fire Restrictions
- Fire safe behavior
- Contact information for emergency services, BLM, other land management agencies in the area.
- Where to find additional information such as hotline number, website, BLM.
- Other important resources in the area
- Interpretive information

Maps –

- Trail maps will be provided at the trailhead and other access points as necessary. The maps will also be widely distributed locally to clubs, OHV dealers, chamber of commerce, or any other appropriate outlet including popular local OHV riding areas.

Kiosks –

- Kiosks will be located at trailheads and other key access points as necessary. Kiosks will contain the information listed above including maps but will also be an avenue for current information including current closures, restrictions, or special events.

Hotline –

- An 800 number hotline will be setup by the BLM that will provide the most current information available including current closures, restrictions, special events, trail conditions, and weather.

Website –

- A website will be setup by the BLM that will provide all of the information listed above including maps but will also be an avenue for current information including current closures, restrictions, special events, trail conditions, and weather.

C. Enforcement

- A volunteer trail patrol program will be set up. This program will train volunteers in contacting the public and will focus on educating the public and peer enforcement of rules and regulations. These volunteers will not have the capability to write tickets but will be trained in dealing with confrontation and reporting incidences. Volunteers will be active during busy weekend periods in order to contribute to BLM presence at the trail system.
- The BLM will actively work with the county in regards to memorandum of understandings and agreements for law enforcement, emergency services, equipment, training, rescue plans, and funding sources for these.

E. Evaluation

- This will be tied directly with the social and physical monitoring as outlined in the monitoring plan. The results of that monitoring will be evaluated for any necessary adjustments in the education and enforcement program.

SECTION 8: Sign Plan

General Information

1. This plan is intended to be used as a guide in designing and purchasing signs and materials for this trail system. It is intended to allow flexibility and variability depending on specific site conditions.

2. For safety, durability, and professional appeal, the following general sign specifications are recommended:

    a. All signs should be reflective.
    b. All signs should have radius corners.
    c. All signs should have a border.
    d. All signs should have brown backs.

3. Since this is snow country and high elevation with intense UV radiation, the following are recommended:

    a. The tops of all signs should be taped.
    b. All signs with decals, letters, or numbers should be covered with clear plastic tape which wraps over the top of the sign to prevent snow shear.

4. Signs on 4x4 posts could be removable by installing 4”x4” steel square tubing receivers into the ground. These should have gravel in the bottom for drainage and should protrude 4-6” above the ground level.

Regulatory Signs

1. **Yield and Yield Ahead**
    a. Discussion: Yield signs should be used where trails cross or enter any high use roads. Stop signs generally are not needed since we want riders to yield rather than stop.

    b. Materials: The yield sign should be red/white fully reflective triangular 18”x18”. The yield ahead sign should be yellow/black 12”x12” diamond shape with a yield symbol on the face. Both signs should be polyplate or

similar material with a brown back and they should be mounted on a 4”x4”x6’ treated wood post.

c. Placement: Signs should be placed on the right hand side of the trail about 3’ off the trail so there is about 2’ of clearance between the shoulder of the trail and the edge of the sign. The yield sign should be placed in a visible location no more than 20’ from the shoulder of the roadway. The yield ahead sign should be placed in a visible location about 100-150’ from the yield sign. Placement should vary depending on the alignment and speed of the trail. The sign must be placed far enough back to allow the rider time to read, comprehend, and react to the message.

2. **Reduced Speed Signs**
   a. Discussion: “Slow 5 MPH No Dust” should be installed on all trails and roads leading into the primary camp areas. Since these are congested areas, these signs should help increase safety and reduce dust in camp areas.

   b. Materials: These signs should be white/black fully reflective rectangular 12”x18” polyplate or similar material with a brown back and they should be mounted on a 4”x4”x6’ treated wood post. “Slow No Dust” are in 3” letters, “5 MPH” is in 2” letters.

   c. Placement: Signs should be placed in a visible location on the right hand side of the trail or road. On trails, they should be placed about 3’ off the shoulder so there is about 2’ of clearance between the shoulder and the edge of the sign. On roads, they should be placed about 5’ off the shoulder so there is about 4’ of clearance between the sign and the shoulder.

3. **Exit Only**
   a. Discussion: These signs are to be used at the exit points of the Learner’s Loop.

   b. Message: “EXIT ONLY, DO NOT ENTER”

   c. Materials: These signs should be reflective black 3” letters on white rectangular polyplate or similar material with a brown back. Size to be determined by sign designer. The signs should be mounted on a 4”x4”x6’ treated wood post.

   d. Placement: Signs should be placed in a visible location on the right side of the trail about 3’ off the shoulder so there is about 2’ of clearance between the shoulder and the edge of the sign.

4. One Way
   a. Discussion: These signs are to be used at the entrance points of Learner’s Loops.

b. Message: "ONE WAY TRAIL"

c. Materials: These signs should be reflective black 3" letters on white rectangular polyplate or similar material with a brown back. Size to be determined by sign designer. The signs should be mounted on a 4"x4"x6' treated wood post.

d. Placement: Signs should be placed in a visible location on the right side of the trail about 3' off the shoulder so there is about 2' of clearance between the shoulder and the edge of the sign.

Warning Signs

1. **Shared Use Roads**
    a. Discussion: All existing roads and two-tracks within the trail system will be open to full size vehicles and OHVs unless otherwise closed through transportation planning processes. The majority of these roads are rough and not high speed roads and should not be signed as Shared Use Roads (SURs). The function of the SUR signs is to inform the general visitor to expect non-street legal vehicles on the roadway and to inform the OHV rider to expect full size vehicles.

    b. Message: "OHVs ON ROADWAY"

    c. Materials: Signs should be 12"x12" minimum diamond shape fully reflective black on yellow polyplate or similar warning signs with an ATV symbol. Under this sign, a rectangular fully reflective black on yellow polyplate or similar advisory plate is mounted that says "ON ROADWAY" or "ON ROAD".

    d. Placement: There are minimal roads in the Shoshone OHV area that would require this type of signing based on traffic levels and speed of full-sized vehicles. Additional signs may be needed to inform riders that enter the road off of a trail further into the trail system. In this case, an 8"x8" SUR sign is commonly used where trails cross a SUR.

2. **Two-Way Traffic**
    a. Discussion: All trails are two-way except for learner's loops so riders need to be warned to expect another rider around the next corner. Two-way trails help reduce speeds which in turn reduces trail maintenance and increases safety. We need to educate the riders to ride defensively and responsibly.

    b. Materials: These signs should be yellow/black fully reflective diamond 12"x12" polyplate or similar material with a brown back and they should be mounted on a

4”x4”x6’ treated wood post. The sign should have two opposing black arrows with the words “two-way” at the top and “traffic” on the bottom.

c. Placement: Signs should be placed on all kiosks/map boards and on all major trail access points in camp, trailhead, or staging areas. They should be installed on the right hand side of the trail about 3’ off the trail so there is about 2’ clearance between the shoulder of the trail and the edge of the sign.

Trail Markers

1. **Junction Marker**
   a. Discussion: The junction marker should indicate the trail direction, trail number, and trail difficulty level for the two intersecting trails.

   b. Materials: The markers should be reflective decals placed on a 3½”x22” or longer polyplate slats with reflective brown sheeting. The slats should have radius corners pre-drilled with 1/8” hole in top and a 1/8” x 1” vertical slot in the bottom (this allows for expansion and contraction of the slat). The direction arrows should be reflective white 3” Series C stick on type mounted vertically. The difficulty level should be the standard green circle, blue square, and black diamond symbols. Each completed slat should be covered with 3” clear tape for UV and weather protection. Each junction should have three slats mounted on a 4”x4”x6’ treated wood post.

   c. Placement: The junction markers should generally be placed on the right hand side of the thru trail about 2’ off the trail at the center of the “T”.

2. **Reassurance/Intersection Ahead Marker**
   a. Discussion: These markers warn the approaching rider of an intersection ahead and confirm trail number and trail direction to the departing rider.

   b. Materials: The markers are 5½’ dual-sided brown Carsonite or similar material. The approaching side of the marker should have a 3”x6” reflective yellow decal with a black + intersection symbol. The departing side should have a reflective white on brown arrow indicating the appropriate direction with the trail number in 3” numbers beneath it. The decals on both sides should be covered with clear tape.

   c. Placement: The markers should be placed on the right side of the approaching trail in a visible location about 100’ in advance of the junction depending on the speed and alignment of the trail. The marker must be place far enough back to allow the rider time to read, comprehend, and react to the message.

3. **Reassurance Markers**
    a. Discussion: These markers reassure the rider of the trail number and the continuing direction of the trail.

    b. Materials: The markers are 5½' dual sided Carsonite or similar material. Both sides should have a reflective white on brown arrow indicating the appropriate direction with the trail number in 3" numbers beneath it. The decals on both sides should be covered with clear tape.

    c. Placement: The markers are placed at all road crossings, where trails leave or enter onto roads, before and after sharp turns, or as needed anyplace else to help guide the rider through the trail system.

Travel Management Signs

General note: All travel management signs should have the BLM logo at the bottom.

1. **Allowable Uses**
    a. Discussion: These signs inform the recreationists which modes of travel are allowed on a particular trail. These signs should generally be used at trailheads and where trails cross major roads to discourage unwanted vehicle use.

    b. Message:

TRAIL
CLOSED TO
JEEPS, CARS, PICKUPS
OPEN TO
ALL OTHER
TRAVEL

    c. Materials: The sign should be fully reflective white on brown 12"x18" polyplate or similar material with a brown back. Recreation use symbols should be used to denote "jeeps, cars, pickups". The signs should be mounted on 4"x4"x6' treated wood posts.

    d. Placement: These signs are usually placed between bollards as part of entrance management. At road crossings, the sign is installed on the left side of the trail so that the yield sign can be mounted on the other side of the post.

2. **Seasonal Trail Closure/Discourage Use**
    a. Discussion: These signs inform the reacreationists that a trail or route is either closed to vehicle travel or use is discouraged. These signs should generally be used at the entrance of identified trails for closure/discouraged use.

    b. Message:

VEHICLE TRAVEL ON
TRAIL RESTRICTED
SENSITIVE RESOURCES
IN AREA

PLEASE DO NOT USE TRAIL
SENSITIVE RESOURCES IN AREA

c. Materials: The sign should be fully reflective white on brown 12”x18” polyplate or similar material with a brown back. The signs should be mounted on 4”x4”x6’ treated wood posts.

d. Placement: These signs are placed wherever they are needed and appropriate.

3. **Trail Closed**
   a. Discussion: These signs inform riders that a trail is permanently closed to their use. These are generally used on user-created trails that are not part of the designated trail system and which are or should be closed or rehabbed.

   b. Message:

TRAIL CLOSED TO RESTORE TO ITS NATURAL CONDITION	TRAIL CLOSED PLEASE USE OTHER DESIGNATED ROUTES

   c. Materials: The sign should be fully reflective white on brown 12”x18” polyplate or similar material with a brown back. The signs should be mounted on 4”x4”x6’ treated wood posts.

   d. Placement: These signs are placed wherever they are needed and appropriate.

Education Signs

1. **Please Stay on the Designated Routes**
   a. Discussion: These are effective education signs that; a) remind the riders that only designated routes are open to their use; and b) to educate riders to be responsible in their actions.

   b. Message: PLEASE STAY ON DESIGNATED ROUTES, THE FUTURE OF THIS TRAIL SYSTEM DEPENDS ON YOU

   c. Materials: Reflective white on brown 24”x18” polyplate or similar material with 2” letters.

   d. Placement: These signs are generally placed on kiosks or on primary entry points to the trails.

2. **Please Stay on the Designated Trail**
    a. Discussion: These are effective education signs that; a) remind the riders that only designated trails are open to their use; and b) to educate the riders to be responsible in their actions. These signs are generally used in places where early levels of off-trail use are occurring.

    b. Message: PLEASE STAY ON DESIGNATED ROUTES, THE FUTURE OF THIS TRAIL SYSTEM DEPENDS ON YOU

    c. Materials: Reflective white on brown 24”x18” polyplate or similar material with 2” letters mounted on a 4”x4”x6’ treated wood post.

3. **Stay on Trail**
    a. Discussion: These signs are used in areas where off-trail use is occurring and more subtle signs like #2 above are not being effective. The use of these signs is often accompanied with barriers of fencing to make a strong statement. Although a strong message, the response from responsible riders is overwhelmingly positive.

    b. Message: STAY ON TRAIL OR STAY HOME

    c. Materials: Reflective black on yellow 12”x12” diamond shape plastic laminate mounted on a 4”x4”x6’ treated wood post.

Guide Signs

1. General Guide Signs

a. Discussion: Guide signs give the users basic direction to destination points.

b. Messages: Locations as identified.

c. Materials: Signs should be rectangular reflective white on brown polyplate or similar material with a brown back and 2” minimum letters. Sign size should vary by message and they should be mounted on 4”x4”x6’ treated wood posts.

Appendix D: Shoshone Range OHV Trail System Monitoring Plan

This monitoring plan was developed in conjunction with several outside groups based upon their area of expertise. The social and physical monitoring portions were developed through Northern Arizona University, Parks and Recreation Management Program. The Biological monitoring portion was developed in conjunction with Eastern Nevada Landscape Coalition, Nevada Department of Wildlife, Commission for the Preservation of Wild Horses and Wild Horse Organized Assistance.

The purpose of this monitoring plan is to monitor for change and provide that information to land managers to allow them to make decisions about management strategies based on the relationship of desired conditions to current conditions. While human impacts may change the nature of a recreation site, the amount of change tolerated on any site is a managerial decision. Informed managerial decisions allow for the creation of sustainable recreation environments; however, effective decisions can only be made within an informed framework of social, physical, and biological site data collection.

In order for this to be effective the framework of this monitoring plan must include the following key components:

1. A developed system so that it may be followed in the future,
2. Valid, reliable, and repeatable data collection,
3. Feasible and cost effective to implement,
4. Able to record changes over time, and
5. The provision of information for managerial decisions.

It is critical to understand that a recreation impact monitoring program is based on long-term trend analysis. The on-site monitoring occurs at a predetermined time and provides a "snapshot" of the social, physical, or biological indicators at that particular time. These "snapshots" become managerial benchmarks over time for decision processes related to on-site recreation prescriptions.

This monitoring plan is organized into three categories; Social, Physical, and Biological. Within each of these categories specific monitoring items are identified based on managerial and public interest. For these items monitoring prescriptions are outlined along with potential thresholds and adaptive management strategies. Monitoring is subject to the availability of funding, personnel, and/or equipment.

SOCIAL:

Basic questions of interest to management related to social components of the Shoshone Range OHV Trail System Plan include:

- Are we providing a quality recreation experience?
- How much use is occurring on the trail system?
- How much use and where is use occurring elsewhere in the county?
- Who are our users?
- What benefits are our users seeking?
- What are the user motivations to visit Shoshone Range OHV trail?

- What problems have the users encountered and what managerial actions do the users recommend?

Survey and monitoring approaches:

- Trail use data will be collected at key locations throughout the trail system. Count and time of count will be the primary measure for trail counter data.
- Web based surveying with initial on-site user contacts will be developed through Northern Arizona University. Survey distribution may be through the mail or over the internet.

Timeframe for Monitoring:

Baseline

- Trail use data will be collected beginning at project inception to determine baseline use levels within the project area.

After Treatment:

- Trail use data will be collected on an ongoing basis to determine use levels of the trail system.
- Web based surveying will be conducted the first year following opening and every two years thereafter. Once all phases of the project are completed surveying will then be conducted every five years.
- A "Permittee" survey may be developed and implemented if there is a demonstrated need.
- Personal encounter monitoring using BLM personnel or volunteers may be implemented. A monitoring form would be developed to record this data.

List of Social Indicators for Survey:

- Number of Users/Group
- User Types (Family, Friends, Organized Group, etc.)
- Length of Stay
- Frequency of Visits to Shoshone Range OHV Trail
- First Time vs. Returnee
- Home Location
- Benefits/Motivations/Expectations Met
- Economics ($ Spent - Food, Gas, Lodging, Other)
- User Encounters (Less Than, More That, About Expected)
- Problems Encountered While at Shoshone Range OHV Trail
- Recommendations for BLM Management

Thresholds:

Thresholds for social indicators are based upon feedback from use monitoring in conjunction with user surveys. Social indicator monitoring in conjunction with results from physical and biological monitoring may indicate a need for social adaptive management strategies as well.

Adaptive management strategy:

Modify user survey to include on-site surveys and increase frequency to determine specific reasons for negative feedback. Develop and implement a "Permittee" survey.

Potential mitigation:

- Implement use limit or seasonal restrictions.
- Modify trail system or management strategy based upon results from surveys.

PHYSICAL:

Basic questions of interest to management related to physical components of the Shoshone Range OHV Monitoring Plan include:

- What are the recreational effects to the resource base related to OHV use of the trail?
- How significant are the recreation effects on the Shoshone Range OHV trail?
- Are the recreation affects increasing, decreasing, or staying the same?
- How do we know when to implement recreation management prescriptions on-site to protect the integrity of the resource base?
- What are our immediate maintenance needs?
- What are the solutions to the identified problem?

Survey and Monitoring Approaches:

- Physical impact monitoring will include on-site data collection and web-based analysis including Problem Assessment Areas (noted with a → below) and Interval Assessment (noted with a ☞ below) data collection.
- Recreation monitoring should include GIS Coordinates, Digital Images, and Assessment of Indicator Variables.
- The protocol should be developed through Northern Arizona University due to their level of experience with this type of monitoring.

Timeframe for Monitoring:

Baseline:

- Following construction completion but prior to the opening of each phase to public use a problem assessment area and interval assessment data collection study will be performed. This will include GIS coordinates, digital images, and assessment of indicator variables.

After Treatment:

- Problem assessment area and interval assessment data will be collected once annually. This includes GIS coordinates, digital images, and assessment of indicator variables. This data will identify and prioritize annual maintenance needs.

Potential List of Physical Indicators for Shoshone Range OHV Trail:

→Designated Trailheads

Elements of Use vs. Over-Use

Standard Recreation Impacts

Impacts Beyond the Trailhead Limits
→Undesignated Trailheads
Elements of Use vs. Over-Use
Standard Recreation Impacts
Impacts Beyond the Trailhead Limits
→Designated Pull-Out Areas
→Off Trail Impacts
History/Frequency/Destination Factors
→Road/Trail Intersection Impacts
Full Size Vehicle Intrusions
→Excessive Trail Impact Areas (Rutting, Erosion, Blow-Outs)
→Stream/Wash Crossings (entry/exit/bed)
→Grades
Cross-Cutting Trails
→Open Areas
Trails/Tracks
Other Recreation Impacts
Vegetative Damage
→Rehabilitation Areas Along Trail
Materials (Small site restoration - plantings)
Success/Non-Success
→Other Recreation Impacts Noted Along the Trail:
Campsites/Day Use Areas/Barren Cores
Campfires
Machine Debris
Sign Damage
Other Vandalism

☞Trail (Interval Assessment Every 2 Miles)
Pull-Outs (formal vs. informal)
Width of Trail
Depth of Trail
Excessive Sandy/Silty Conditions
Rutting
Soil Erosion
Multiple Trails
Development of Play Areas
User Created Trails (Off Trail Impacts) - Frequency/History
Invasive Plants (Trail Edge)
Boundary Violations (Private Lands)

Thresholds:

Thresholds will be established through discussion with resource specialists. In addition to suggesting changes in management direction, thresholds will also be vital for triggering adaptive management strategies and looking further into causation of impacts.

Adaptive management strategy:

Perform site visits with resource specialists to determine causation for unacceptable changes and develop mitigation strategies.

Potential mitigation:

- Depending upon site visit and resulting analysis a number of strategies could be implemented including: trail hardening, trail re-route, trail closure, installation of barriers, additional or modification of signage, modification of education strategy, increase agency presence, or increase volunteer patrols.

BIOLOGICAL:

This monitoring plan offers a synthesis of species and wildlife communities that have been identified as important issues and may be affected by the development of the Shoshone Range OHV Trail system. This plan outlines approaches useful in identifying key habitat use areas so that appropriate OHV management in these areas may occur. In addition this plan also briefly outlines approaches to quantifying the direct and indirect effects that OHV activity may have on identified species. This plan will create a framework from which a monitoring system can be established and provide sufficient detail from which informed management decisions can be made regarding location of trails, subsequent phasing, and the management program as a whole.

Greater Sage-Grouse

- Approximately 10 to 20 known leks occur in proximity of the north Shoshone Range and proposed development (including at least two Nevada Department of Wildlife (NDOW) trend leks); lek occupancy appears to exhibit strong yearly variations.
- Population estimates for Shoshone PMU range from ~ 480-600 birds.
- Nesting and brood rearing locations in the area are largely unknown. However, based on current knowledge nesting likely occurs within approximately a six mile radius of the lek location and brood rearing habitat likely includes wet meadows associated with Cottonwood Basin (located south of Red Rock road) and drainages surrounding Horse Mountain.
- Late summer movement is largely unknown but in Nevada late season movements typically involve dispersals to higher elevations. In the north Shoshone Range this likely includes the montane sagebrush community located on the central, upper ridges.

Survey and monitoring approaches:

- Document sage grouse movement and seasonal habitat use through radio telemetry due to an interest in identifying nest and brood sites.
    - Approximately 20 birds will be hung with radio collars (15 females and 5 males).
    - Biweekly telemetry locations will be taken four months of the year and monthly telemetry locations taken eight months of the year for at least three years prior to trail development in suitable habitat locations. Aerial surveys may be warranted.

- Coordinate with NDOW to facilitate ongoing surveys of lek occupancy utilizing current BLM/NDOW survey protocol.
- Conduct brood surveys in appropriate habitat utilizing current BLM/NDOW survey protocol.

The primary goal of the study will be to delineate locations where grouse and human uses co-occur. The intent of this investigation will be to limit or exclude trail development in areas supporting high grouse use. Additional effort may be given towards identifying changes in lek and brood rearing site occupancy using a before-and-after treatment experimental design. Prior to trail construction in areas of suitable habitat, baseline data will be gathered to determine seasonal movement, and lek and brood habitat occupancy. This survey approach will continue annually throughout the entire build out of the project representing, essentially, '*after treatment monitoring'*.

Thresholds:

Thresholds will be established through discussion with resource specialists. Established thresholds are vital for triggering adaptive management strategies, focusing additional experimental inquiries, and influencing management direction. Essentially, thresholds (which may be flexible) will represent the percentage of site overlap occurring between grouse and OHV users. Additionally, changes in associated lek and brood site occupancy considered abnormal or unreasonably high based on yearly variation or in comparison to assumed unaffected sites (control) may be used to infer impacts.

Adaptive management strategy:

- Depending on monitoring and survey results a scaled back development may be warranted.
- Dependent on results from these two strategies, trail location may be altered or withdrawn.
- Dependent on results from habitat use study (telemetry) and brood rearing surveys, additional monitoring of nest success and chick survival may be warranted.

Potential mitigation:

- Seasonal route closures (i.e., upper elevational montane sagebrush and wet meadow/riparian habitats found in Cottonwood Basin and around Horse Mountain).
- Re-locate, limit, or exclude development in proximity to known high use areas.

Raptors

- Primary habitat features influencing nesting occurrence include aspen stands (especially in the Cottonwood Basin), cliff outcrops, sagebrush flats, and the interface between juniper and sagebrush communities.
- Known or likely occurring species include Cooper's hawk, northern goshawk, burrowing owl, sharp shinned hawk, great horned owl, long eared owl, turkey vulture, American kestrel, prairie falcon, golden eagle, red-tailed hawk, and ferruginous hawk. A known

red-tailed hawk nest occurs in Cottonwood Basin. Wintering species include merlin, rough-legged hawk, and bald eagles.

Survey and monitoring approaches:

- Identify suitable habitat conditions through field visit and remote sensing data.
- Conduct systematic observational surveys and nest searches in suitable habitat to identify use (including looking for white-wash on suitable cliff faces and stick-nests in aspen stands) prior to ground disturbance.
- Identified nests or nesting habitat with documented observations will be mapped and revisited as needed to determine use and/or nest success.
- Burrowing owl surveys may be conducted congruently with pygmy rabbit surveys.
- Dependent on efficacy of targeted raptor surveys (questionable for ferruginous hawks), aerial counts may be warranted.

Species specific nest success or presence/absence will be the primary units of measure using a before-and-after treatment experimental design. Prior to trail construction, '*baseline surveys'* will be conducted and subsequent return visits will performed, as appropriate, to locations with prior observations. This survey approach will continue throughout the entire build out of the project on an annual or biannual basis representing, essentially, '*after treatment monitoring'*.

Thresholds:

Thresholds will be established through discussion with resource specialists. Established thresholds will be vital for triggering adaptive management strategies, focusing additional experimental inquiries, and influencing management direction. Essentially, thresholds (which may be flexible) will represent the percentage of nest failure or presumed site abandonment considered abnormal or unreasonable high.

Adaptive management strategy:

- Limit trail development within appropriate distances and at least a ¼ mile from identified nesting areas depending on species and habitat type.
- 5 years of '*after treatment monitoring'* are anticipated to be sufficient to suggest changes in site occupancy; however, if data are inconclusive monitoring will continue.
- Given raptor nesting in proximity (<1/4 mile) to OHV activity, nest monitoring will occur to determine nesting success.

Potential mitigation:

- Provide an appropriate distanced buffer of at least a ¼ mile around known or newly established raptor nesting sites through trail re-routes or re-locations. Buffer distance will be species and habitat dependent.
- Seasonal closures of trails in proximity to known raptor nest sites during sensitive nesting phases.

Pygmy Rabbit

Occurrence of pygmy rabbits in the area appears to be limited. In surrounding ranges (Fish Creeks and Battle Mountains), however, this species has been documented on ridge tops, thus occurrence may be underestimated. This atypical occurrence in nearby areas may suggest a similar pattern within the Shoshone Range. Pursuant to BLM regulations, surveys will be conducted prior to ground disturbance. Extending survey effort out to 100 meters on either side of new trail development should likely prove sufficient to delineate occupied sites and populations that may be potentially impacted by activity. Periodic monitoring (every 2-3 years) for continued site use by known populations following development should likely prove sufficient to infer impacts from OHV activity.

Survey and monitoring approaches:

- Conduct 100% coverage surveys out to 100 meters on either side of proposed trail footprint in suitable habitat preceding ground disturbance.
- Utilize current BLM survey protocol.
- Map known occurrences and revisit known sites biannually to quantify changes in site occupancy.

Presence/absence (or possibly population size) will be the primary unit of measure using a before-and-after treatment experimental design. Prior to trail construction, '*baseline surveys'* will be conducted and this survey approach will continue every 2 to 3 years throughout the entire build out of the project representing, essentially, '*after treatment monitoring'*.

Thresholds:

Thresholds will be established through discussion with resource specialists. Established thresholds will be vital for triggering adaptive management strategies, focusing additional experimental inquiries, and influencing management direction. Essentially, thresholds (which may be flexible) will represent the percent change in site occupancy considered abnormal or unreasonably high.

Adaptive management strategy:

- Depending on initial coverage surveys proposed trails would be re-located to avoid identified use areas.
- Dependent on results from site occupancy surveys, more intensive population studies may be implemented to determine population size and survival.
- Depending on monitoring results the re-route or re-location of trails may be warranted.

Potential mitigation:

- Re-locate trails to avoid identified high use areas

Wild Horses

Wild horse impacts could be documented in the following ways:

- Changes to historical distribution and use patterns
- Orphan foal occurrence
- Incident/injury, impact with fences and cattle guards.
- Difficulty in gathering wild horses during gathers.

Census flights would be conducted at 2-4 year intervals following the planned gather scheduled for summer 2007. The first census flight should be planned as early as fall 2007 with regularly scheduled census flights occurring after that on an on-going basis.

In addition to census flights, seasonal distribution flights should be scheduled 2-3 times per year for 1-2 years to establish baseline wild horse distribution data following the scheduled summer 2007 gather. Seasonal distribution flights 2-3 times per year every 4 years should occur through the next 10 years after implementation of the chosen alternative.

The census and distribution flights conducted after the proposed July 2007 wild horse gather, and throughout the development and implementation of Phase I, would be utilized to establish baseline data for wild horse distribution and use within the HMA.

Historical population data should be compiled and summarized for wild horse distribution and percent of population in relation to the proposed trail systems. Through collection of baseline data and follow up distribution flights, analysis should be completed to assess differences.

Through the volunteer patrols and educational information, reporting of unusual situations, orphans or injured/killed animals would be reported to the BLM. Information would be collected after initial implementation of the Phases, and data collected thereafter would be compiled and compared to the baseline.

Specialists would also document wild horse behavior during gathers. The Shoshone Range has never been gathered. During the proposed gather in summer 2007, detailed observations would be made and documentation from the contractor. During subsequent gathers (2010 and beyond), observations of a similar nature would continue, and increased difficulty documented. Any HMA that is gathered on a regular basis will experience increased difficulty to some degree. The data from the Shoshone Range would be compared with typical difficulty noted in other areas that have been gathered previously.

During the gather in 2007, Field Office staff may microchip and freezemark released wild horses to further collect data on wild horse movement. Future ground observations and gathers would provide data pertaining to wild horse movement, health and other information. It is possible that certain types of microchips could be implanted that could be detected through satellite technology. If accessible and cost effective, this type of implant would facilitate the ability to comprehensively study the wild horse distribution and movement without disturbance through helicopter flights.

Should census, gather or field data indicate that negative wild horse distribution changes are being caused by OHV use or that horses are being orphaned or injured as a result of increased OHV use, modifications would occur that would include the closure or re-location of OHV trails within the HMA, as well as increased compliance monitoring.

Thresholds:

Thresholds will be established through discussion with resource specialists. Established thresholds will be vital for triggering adaptive management strategies, focusing additional experimental inquiries, and influencing management direction. Essentially, thresholds (which may be flexible) will involve abnormal or undesirable changes to wild horse distribution within the HMA, and resulting use of forage and water sources. Negative changes in wild horse health as a result of distribution changes would serve as thresholds. Increased occurrence of wild horses being injured in fences or cattleguards, and occurrence of orphans would also be included as thresholds.

Adaptive management strategy:

- Proposed trails would be re-located to avoid areas used by wild horses.
- The re-route or re-location of trails outside of the HMA may be warranted.
- Closure and rehabilitation of trails within portions of the HMA.

Potential mitigation:

- Re-locate trails to avoid identified high use areas

Additional Inventories:

- Plant surveys:
  100% coverage surveys for rare plants will take place in locations exhibiting suitable conditions that are anticipated to be disturbed during construction.
- Sadas pyrg:
  This species is not recognized by the BLM but is tracked by the NNHP. Its distribution appears limited to Mill Creek and impacts to the riparian habitat should be anticipated to alter occurrence. The presence/absence of this species may be checked on a periodic basis, especially if Physical monitoring suggests this area is being heavily used.
- Toad Species located in Cottonwood Basin
  An unidentified toad species is known to occur in upper cottonwood basin. The presence/absence of this species may be checked on a periodic basis, especially if physical monitoring suggests this area is beginning to see an increase in use. Adaptive management could include fencing or signing to limit use in this area.

Timeline of Inventories and Monitoring in Relation to Project Implementation

Inventory to Occur Prior to Construction and Implementation

- Raptors
  - Inventory for nest locations in suitable habitat (aspen stands, cliff bands, etc…)
  - Mitigation: Establish appropriate buffer of at least a ¼ mile around nest locations.
- Pygmy Rabbits
  - Inventory proposed new trails for burrows following established BLM survey protocol.
  - Mitigation: Avoid burrows by ¼ mile
- Cultural Resources
  - Perform a Class III survey on proposed new trails for cultural artifacts.
  - Mitigation: Avoid significant sites
- Noxious and Invasive Weed Species
  - Inventory proposed new routes and existing roads to be used as part of the trail system for infestations.
  - Mitigation: Avoid known locations, treat existing infestations on existing roads that will be used as part of the trail system. Re-seed newly constructed trails with native seed mix following best management practices.
- Sensitive Species
  - Inventory proposed new routes and existing roads to be used as part of the trail system for sensitive plant and animal species in areas of suitable habitat.
  - Mitigation: Avoid sensitive species through trail design, road re-location, fencing, or other means.
- Migratory Birds
  - Inventory nesting or breeding birds in suitable habitat if construction is to occur between April 1st and July 15th.
  - Mitigation: Trail construction would not occur between April 1st and July 15th if nesting or breeding birds are located within the construction corridor.
- Physical Monitoring
  - The trail system will be monitored following the physical monitoring guidelines to establish a baseline data set.

On-going Monitoring

- Physical Monitoring
  - The trail system will be monitored following the physical monitoring guidelines.
  - Mitigation: If changes are occurring at unacceptable levels a variety of trail management techniques may be implemented. This includes but is not limited to trail hardening, trail maintenance, trail re-location, and installation of signing or barriers.
- Social Monitoring

    - Use level data and user surveys will be conducted on an ongoing basis.
    - Trail management may be modified including singing, mapping, enforcement, etc…
- Sagegrouse
    - Radio collars will be used to track movements to identify key habitat areas.
    - Mitigation: Existing trails and proposed new trails may be re-routed or re-located to avoid to the greatest extent possible key use areas.
- Wild Horses (Would occur only if Alternative C is not chosen)
    - Following the proposed summer 2007 horse gather, a census flight will be completed in Fall 2007. 2-3 seasonal distribution flights per year will occur for two years to identify patterns of seasonal use following the gather to establish baseline data. If the Proposed Action or the Limited Use Alternative is chosen Phase 2 implementation would not occur until this baseline data is collected. Following the two year period, seasonal distribution and census flights would occur if previous monitoring, and increased OHV use indicated that it was necessary. Otherwise, normal census flights conducted by the wild horse staff would continue to occur every 2-4 years.
    - Mitigation: Re-route, re-location, closure of trails, or modification of phases may occur within the HMA if impacts are occurring beyond acceptable levels.
- Noxious and Invasive Weed Species
    - Ongoing monitoring for new, spreading, and treated infestations throughout the trail system will occur. Monitor for success of re-seeding on newly constructed trails.
    - Mitigation: On-going treatment of infestations will occur. Re-seeding will occur if necessary. Trails may be re-routed or re-located to avoid infestations.
- Raptors
    - Ongoing monitoring will occur for new raptor nesting sites in suitable habitat areas along the trail system.
    - Mitigation: Trails may be re-routed or re-located to avoid new nesting sites by appropriate distances depending upon species.

APPENDIX E – Bibliography

Bureau of Land Management (BLM). BLM Manual Handbook 8410-1, Visual Resource Inventories. U.S. Department of the Interior, Bureau of Land Management, 1986.

Bureau of Land Management (BLM). Egan Resource Area Record of Decision. U.S. Department of the Interior, Bureau of Land Management, 1987.

Bureau of Land Management (BLM). *Cumulative Impact Analysis.* U.S. Department of the Interior, Bureau of Land Management, Nevada State Office. 1990.

Bureau of Land Management (BLM). *General Procedural Guidance for Native American Consultation BLM Manual Handbook H-8160-1.* U.S. Department of the Interior, Bureau of Land Management, 1994

Bureau of Land Management (BLM) Castleoworht Ventures, Inc. Pan Exploration Project, Environmental Assessment. U.S. Department of the Interior, Bureau of Land Management, 2004.

Bureau of Land Management (BLM) . Carico Lake Evaluation and Rangeland Health Assessment. U.S. Department of the Interior, Bureau of Land Management, 2005.

Chavez, Deborah and Micheal Schuett. Profiling Off-Highway Vehicle Users: The Case of the National Off-Highway Vehicle Conservation Council, Inc. January 2005

Christensen, C. 2005. Personal communication with Chuck Christensen, Ely KOA Kampground.

Crimmins, T., 1999. *Colorado Off Highway Vehicle User Survey: Summary of Results.* Colorado State Parks, OHV Program.

Devol, Jeff. Synopsis: Research on the Effects of OHV Recreation on Wildlife. West Virginia Off-Highway Vehicle Association. 1999.

Dufourd, Dick. Master Performer, Trail Recreation, Deschutes National Forest. Nevada BLM Recreation Management Presentation, October 27-28, 2004.

Dufourd, Dick. Master Performer, Trail Recreation, Deschutes National Forest. Personal Conversation. June 23rd, 2004.

Fisher, A. L., Blahna, D. J., & Bahr, R. 2001. *Off-highway vehicle uses and owner preferences in Utah (Professional report IORT PR2001-02).* Logan, UT: Institute for Outdoor Recreation and Tourism, Department of Forest Resources, Utah State University.

Forman, Richard & Sperling, Daniel et al. 2003. *Road Ecology; Science and Solutions*. Washington, DC, Island Press.

Havlick, David G. 2002. *No Place Distant; Roads and Motorized Recreation On America's Public Lands.* Washington, DC, Island Press.

Hawk Conservancy Trust, The. Taken from http://www.hawk-conservancy.org/priors/coopers.shtml November 14, 2005.

Hayes, Fred. Off-Highway Vehicle Programs, Utah Division of State Parks and Recreation. Taken from http://extension.usu.edu/cooperative/iort/files/PDF/OHV.pdf November 10, 2005.

Hellmund Associates. Planning Trails with Wildlife in Mind, A handbook for Trail Planners. Trails and Wildlife Task Force, Colorado State Parks, 1998.

Ivins, T. 2005. Personal communication with Terry Ivins, Nevada Division of State Parks.

Jones & Stokes Associates, Inc. Rock Creek off-road vehicle/deer study. Prepared for CA. Department of Fish and Game; CA. Department of Parks and Recreation and El dorado National Forest, Sacramento, CA. 1991.

Knight, R. L., & Skagen, S. K. Effects of recreational disturbance on birds of prey: A review. Paper presented at the Proceedings of S.W. Raptor Management Symposium and Workshop. 1988.

Kutilek, M. & Robert Ferris. Responses of Black-Tailed Deer to OHVs in Hollister Hills State Vehicle Recreation Area, Final Report. San Jose State University, Department of Biological Science. 1989.

Lyon, L. J. 1983. Road density model describing habitat effectiveness for elk. Journal of Forestry 81:592-595.

Miller, S. G., & Richard, L. K. Recreational Trails and Avian Communities. Fort Collins, CO: Dept. of Fishery and Wildlife Biology Colorado State University. 1997.

Nash, Keir. Understanding and Planning for ORV Recreation: The 1978-79 Washington Off road Recreation Survey. 1979

Nelson, Steven. Recreation Opportunity Preferences of All-Terrain Vehicle and Trailbike Riders, and the Potential to Provide Summer Riding Opportunities in the Upper Wind River Winter Sports Area. December 1990.

Rocky Mountain Elk Foundation. Taken from http://www.rmef.org/pages/elkhabitat.html November 14, 2005.

Schubert, D.J., Impacts of Stress on Wildlife. 2004. Taken from www.wildlandscpr.org/databases/biblionotes/stress-wildlife.htm November 8, 2005.

State of Nevada, Department of Agriculture, Plant Industry Division. Taken from http://agri.nv.gov/nwac/PLANT_NoxWeedList.htm November 10, 2005.

State of Nevada, Department of Conservation and Natural Resources, Natural Heritage Program. http://heritage.nv.gov

State of Nevada, Department of Conservation and Natural Resources. Nevada Natural Resources Status Report. Taken from http://dcnr.nv.gov/nrp01/bio04.htm November 10, 2005.

State of Nevada, Department of Wildlife. Taken from http://www.ndow.org/wild/animals/facts/mule_deer.shtm November 10, 2005.

State of Nevada, Division of Environmental Protection, Bureau of Air Pollution Control. 2004. Taken from http://ndep.nv.gov/bapc/index..htm November 14, 2005.

State of Nevada, Division of State Parks, Planning and Development Section. Nevada 2005 State Recreational Trails Plan, 2005.

Texas Chapter of the American Fisheries Society, Off Road Vehicles and Their Impact on Stream Environments., January 2002. Taken from http://www.sdafs.org/tcafs/content/orvpol.htm, November 8, 2005.

United States Department of Agriculture (USDA). Natural Resources Conservation Service. Soil Survey of Western White Pine County Area, Nevada: Parts of White Pine and Eureka Counties. 1998.

United States Department of Agriculture (USDA), US Forest Service-Technology and Development Program. Rock Creek Enduro Tests, Eldorado National Forests. May 1993.

U.S. Environmental Protection Agency. Taken from http://epa.gov/otaq/recveh.htm November 10, 2005.

United States Fish and Wildlife Service, Division of Migratory Bird Management. Migratory Bird Mortality-Many Human Caused Threats Afflict Our Bird Populations. Viewed at http://www.fws.gov/birds/mortality-fact-sheet.pdf on November 10, 2005.

Wernex, Joe. Off-Highway Motorcycle and ATV Trails Guidelines for Design, Construction, Maintenance, and User Satisfaction, 2nd Edition. 1994

Wisdom, M. J., H. K. Preisler, N. J. Cimon, B. K. Johnson. 2004. Effects of off-road recreation on mule deer and elk. Transactions of the North American Wildlife and Natural Resources Conference 69

Youmans, H. 1999. Project overview. Effects of recreation on Rocky Mountain Wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society. 307pp.